DOCUMENT RESUME

ED 469 985 HE 035 419

AUTHOR	Bradburn, Ellen M.; Berger, Rachael
TITLE	Beyond 9 to 5: The Diversity of Employment among 1992-93 College Graduates in 1997. Postsecondary Education Descriptive Analysis Reports.
INSTITUTION	National Center for Education Statistics (ED), Washington, DC.; MPR Associates, Berkeley, CA.
REPORT NO	NCES-2003-152
PUB DATE	2002-10-00
NOTE	92p.; Project Officer, C. Dennis Carroll.
AVAILABLE FROM	ED Pubs, P.O. Box 1398, Jessup, MD 20794-1398. Tel: 877-433-7827 (Toll Free); Fax: 301-470-1244; e-mail: edpubs@inet.ed.gov.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC04 Plus Postage.
DESCRIPTORS	Clerical Occupations; *College Students; *Employment Patterns; Farm Occupations; Higher Education; Nontraditional Occupations; *Part Time Employment; Part Time Students
IDENTIFIERS	*Baccalaureate and Beyond Longitudinal Study (NCES)

ABSTRACT

This study examined the working experiences of college students who are not full-time professional employees, but instead have alternative employment. The study examined both alternative working arrangements and occupation types. Alternative working arrangements include self-employment, part-time employment, and employment in multiple jobs. Among occupation types considered alternative were clerical and support occupations and field professions (farming, forestry, etc.) because these jobs have historically been filled by workers without bachelor's degrees. Data from the 1993/2007 Baccalaureate and Beyond Longitudinal Study were used, representing college graduates who received their bachelor's degrees in academic year 1992-1993. In 1997, about two-thirds of these 1992-1993 graduates not enrolled in further education worked in jobs considered traditional for college graduates. Self-employment, working part time, and being employed in multiple jobs were relatively uncommon. In all, 15% reported working in at least one of these 3 types of alternative working arrangements. Thirteen percent reported working in clerical and support occupations, and an additional 8% reported working in field professions. Information is provided about student and employee characteristics and reasons for choosing alternative employment. Appendixes contain a glossary and technical notes. (Contains 11 figures, 19 tables, and 23 references.) (SLD)

Reproductions supplied by EDRS are the best that can be made
from the original document.

NCES
National Center for Education Statistics

PEDAR

Beyond 9 to 5

The Diversity of Employment Among 1992–93 College Graduates in 1997

U.S. Department of Education
Office of Educational Research and Improvement
NCES 2003–152

Postsecondary Education Descriptive Analysis Reports

ED 469 985

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

HE035419

NCES
National Center for Education Statistics

PEDAR

U.S. Department of Education
Office of Educational Research and Improvement
NCES 2003-152

Beyond 9 to 5

The Diversity of Employment Among 1992-93 College Graduates in 1997

Postsecondary Education Descriptive Analysis Reports

October 2002

Ellen M. Bradburn
Rachael Berger
MPR Associates, Inc.

C. Dennis Carroll
Project Officer
National Center for Education Statistics

U.S. Department of Education
Rod Paige
Secretary

Office of Educational Research and Improvement
Grover J. Whitehurst
Assistant Secretary

National Center for Education Statistics
Gary W. Phillips
Deputy Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to:

National Center for Education Statistics
Office of Educational Research and Improvement
U.S. Department of Education
1990 K Street NW
Washington, DC 20006-5651

October 2002

The NCES World Wide Web Home Page is: http://nces.ed.gov
The NCES World Wide Web Electronic Catalog is: http://nces.ed.gov/pubsearch

Suggested Citation

U.S. Department of Education, National Center for Education Statistics. *Beyond 9 to 5: The Diversity of Employment Among 1992–93 College Graduates in 1997,* NCES 2003–152, by Ellen M. Bradburn and Rachael Berger. Project Officer: C. Dennis Carroll. Washington, DC: 2002.

For ordering information on this report, write:

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 20794-1398

or call toll free 1-877-4ED-PUBS

Contact Contact:
Aurora D'Amico
(202) 502-7334
Aurora.D'Amico@ed.gov

Executive Summary

Numerous studies have examined the employment benefits of earning a bachelor's degree, concluding that higher levels of education sharply increase one's earning potential and employment opportunities (Cappelli et al. 1997). In particular, several studies have demonstrated the labor market advantage that students who concentrate in applied fields, such as business and engineering, experience with respect to higher salaries and full-time employment (e.g., Grogger and Eide 1995; Pascarella and Terenzini 1991; Rumberger and Thomas 1993). However, today's labor market does not necessarily guarantee a college graduate a traditional 9 to 5 job, nor is this type of employment the only option. Bachelor's degree recipients are well-represented in the contingent (short-term) workforce (Bureau of Labor Statistics 2001; Hipple 1998), but there is little research that examines the experiences of bachelor's degree recipients who are not full-time professional employees, but instead have alternative employment.

Although alternative employment is defined differently in various studies, this analysis examines both *alternative working arrangements* and *occupation types*. Alternative working arrangements examined here include self-employment, part-time employment, and employment in multiple jobs. An aggregate variable indicating whether or not the respondent was in *any* of these three employment situations is also included. In addition, this analysis explores the occupation type of the respondents: clerical and support occupations and field professions[1] are both considered alternative employment for this study because they include jobs historically filled by workers without bachelor's degrees (Decker, Rice, and Moore 1997).

This study uses data from the 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97), representing college graduates who received their bachelor's degrees in academic year 1992–93. Survey participants were sampled from the 1992–93 National Postsecondary Student Aid Study (NPSAS:93) and were first surveyed in their final year of college, with follow-ups conducted in 1994 and 1997, approximately 1 year and 4 years after graduation. The analysis focuses primarily on employment in 1997 and includes those who were employed and not enrolled for further study at that time. The data are used to address the following questions: How prevalent is alternative employment among bachelor's degree recipients who are not enrolled? Which bachelor's degree recipients are most likely to work in alternative employment, by various demographic, family, and academic characteristics, particularly by gender? What are the differences between patterns of alternative employment when graduates are 1 year out of college and when they are 4 years out of college? How do those in alternative employment differ from those in traditional employment in

[1] "Field professions" include jobs such as those in farming and forestry, protective services, and health and recreation services, professions that are likely to involve long or nontraditional hours or work outside of a conventional office setting. See the glossary for complete information about the occupation types examined in this analysis.

terms of their reasons for taking their job, benefits, salaries, and job satisfaction?

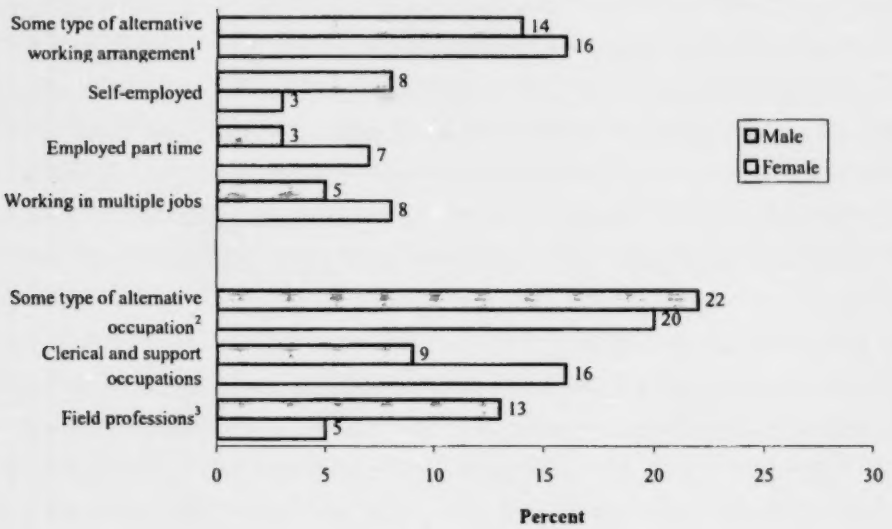
Prevalence of Alternative Employment

In 1997, about two-thirds (68 percent) of employed 1992–93 bachelor's degree recipients who were not enrolled for further study worked in jobs considered traditional for college graduates—that is, they worked full time for someone else in one professional job. Self-employment, working part time, and being employed in multiple jobs were each relatively uncommon among employed, nonenrolled 1992–93 bachelor's degree recipients (5 percent were self-employed, 5 percent were employed part time, and 7 percent worked in multiple jobs). In all, 15 percent reported working in at least one of these three types of alternative working arrangements. Also, 13 percent reported working in clerical and support occupations, and an additional 8 percent reported working in field professions.

Demographic, Family, and Academic Characteristics

Consistent with other current research (Callaghan and Hartmann 1991; Polivka 1996a, 1996b), this analysis indicates that gender was associated with many types of alternative employment (figure A). Among 1992–93

Figure A.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1997



[1]Includes self-employment, part-time employment, and employment in multiple jobs. These categories do not sum to the total because they are not mutually exclusive.

[2]Detail may not sum to total due to rounding.

[3]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

BEST COPY AVAILABLE

bachelor's degree recipients who were employed but not enrolled in 1997, women were more likely than men to have some type of alternative working arrangement (16 vs. 14 percent). However, the gender differences varied with the specific type of alternative working arrangement considered. Women were more likely than men to have part-time employment (7 vs. 3 percent) or multiple jobs (8 vs. 5 percent), while men were more likely than women to be self-employed (8 vs. 3 percent). Women were also more likely than men to work in clerical or support occupations (16 vs. 9 percent), while men were more likely than women to work in field professions (13 vs. 5 percent). Except for working in multiple jobs, these differences in alternative employment remained even after controlling for other variables.

Family characteristics were related to various alternative working arrangements among women, but few differences by family characteristics were detected among men. For example, among women, having dependents was associated with a greater likelihood of having some type of alternative working arrangement (24 vs. 13 percent), specifically, self-employment (5 vs. 3 percent) or part-time employment (15 vs. 4 percent). However, these differences were not detected among men. Among both men and women, marital status was related to working part time. However, while married women were more likely than single women to work part time (10 vs. 4 percent), married men were *less* likely than their single counterparts to work part time (2 vs. 4 percent).

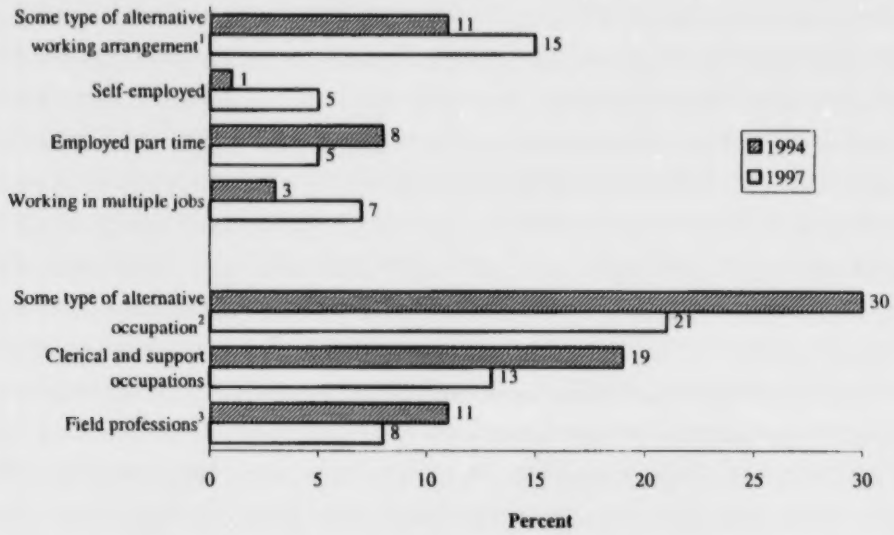
Some aspects of the academic experiences of 1992–93 bachelor's degree recipients were associated with various types of alternative employment in 1997, 4 years after college completion. Undergraduate grade-point average (GPA) was associated with the likelihood of working part time, having a clerical or support occupation, and having a field profession. As GPA increased, so did the prospect of having part-time employment. In contrast, as GPA increased, the likelihood of having a clerical and support or field occupation decreased.

Several studies have shown that students who concentrate in applied fields such as business and engineering are more likely to be employed full time (Grogger and Eide 1995; Pascarella and Terenzini 1991; Rumberger and Thomas 1993). Consistent with these studies, this analysis shows that business and engineering majors were less likely than average to report having a part-time job (2 percent each vs. 5 percent). Undergraduate major was also associated with type of occupation. Nineteen percent of social science majors reported working in clerical and support occupations. In contrast, education, engineering, and health majors were less likely than average to work in clerical and support occupations (7, 2, and 6 vs. 13 percent). And health majors were less likely than average to work in field professions (2 vs. 8 percent). Because education, engineering, and health are applied fields in which students are preparing for specific professional careers, students who major in these fields are particularly likely to be employed in them after completing college (Horn and Zahn 2001). By definition, the areas for which they have prepared (teaching, medical professions, and engineering) are included in the professional occupations.

Alternative Employment 1 and 4 Years After College Completion

This analysis also examines how the alternative employment experiences of college graduates differed when they were 1 year and 4 years out of college (figure B). Employed 1992–93 bachelor's degree recipients who were not enrolled were more likely to have some type of alternative

Figure B.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1994 and 1997



[1]Includes self-employment, part-time employment, and employment in multiple jobs. These categories do not sum to the total because they are not mutually exclusive.

[2]Detail may not sum to total due to rounding.

[3]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

working arrangement in 1997 than they were in 1994 (15 vs. 11 percent). Specifically, in 1997 compared with 1994, they were more likely to have multiple jobs (7 vs. 3 percent) or to be self-employed (5 vs. 1 percent). Conversely, in 1997, they were less likely to work part time or to have clerical and support occupations or field professions.

Many gender differences in alternative employment persisted from 1 year to 4 years out of college. In both 1994 and 1997, women were more likely than men to have some type of alternative working arrangement (13 vs. 10 percent in 1994; 16 vs. 14 percent in 1997). In 1994, women were more likely than men to work part time (9 vs. 6 percent) or to have clerical and support jobs (23 vs. 14 percent), while men were more likely than women to work in field professions (16 vs. 7 percent) or to be self-employed (2 vs. 1 percent). These patterns were consistent with the differences found for 1997, as described in the previous section.

Working in alternative employment in 1994 was associated with a greater likelihood of doing so in 1997. Specifically, 45 percent of those who were self-employed in 1994 were also self-employed in 1997, compared with 5 percent of those who were not self-employed in 1994. About half (51 percent) of those who had multiple jobs in 1994 also did in 1997, compared with 5 percent of those who did not have multiple jobs in 1994. In addition, part-time workers in 1994 were more

likely than their full-time counterparts to be working part time in 1997 as well (18 vs. 4 percent). Finally, one-third (36 percent) of those who had clerical and support jobs in 1994 also had clerical and support jobs in 1997, compared with 7–10 percent of those with other types of jobs in 1994. Similarly, 43 percent of those with field professions in 1994 were still in positions of this type in 1997, compared with 4–5 percent of those with other occupations in 1994.

Alternative Employment and Other Labor Market Experiences

Workers have a range of reasons for voluntarily or involuntarily working in alternative employment, balancing the disadvantages and benefits associated with particular jobs. Studies suggest a number of reasons why a worker may not have a traditional job. For example, a worker may not be able to find permanent work, or he or she may choose alternative employment to obtain flexible hours, to make a transition into a new job or field, or to earn more money (Lester 1996; Rothstein 1996).

Among 1992–93 bachelor's degree recipients who were employed but not enrolled in 1997, those with some type of alternative working arrangement were more likely than others to report having the freedom to make decisions as a reason for taking their job (10 vs. 4 percent; figure C). Part-time workers were more likely than those working full time to cite convenience (12 vs. 8

Figure C.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by alternative working arrangement: 1997

*Includes self-employment, part-time employment, and employment in multiple jobs. These categories are not mutually exclusive.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

percent) or having time for non-work-related activities (5 vs. 2 percent) as a reason for choosing their job. Also, those who were self-employed were more likely to cite income potential as a reason for choosing their job (17 vs. 10 percent). On the other hand, those with some type of alternative working arrangement were less likely to report interesting work (15 vs. 19 percent), advancement opportunities (9 vs. 18 percent), good starting salary (8 vs. 12 percent), or good job security (4 vs. 6 percent) as a reason for taking their job.

Part-time workers were less likely than full-time workers to receive each of the benefits examined—health insurance benefits (41 vs. 91 percent), paid sick leave (39 vs. 88 percent), paid vacation (39 vs. 90 percent), retirement benefits (44 vs. 82 percent), family-related benefits (31 vs. 70 percent), and job training (29 vs. 47 percent). Among full-time workers, those with some type of alternative working arrangement were less likely than others to receive each benefit examined. Full-time workers who were self-employed or had multiple jobs were less likely than others to receive benefits. In addition, full-time workers employed in field professions were generally less likely than those employed in professional occupations or clerical and support occupations to receive benefits. Fewer differences in benefits were detected among part-time workers.

Among graduates who worked full time, several differences in income were detected by alternative employment. Those who were self-employed had a higher income than their counterparts who worked for someone else, while those with multiple jobs had a lower income than those with only one job. Those with professional occupations earned more than those with clerical and support occupations or field professions. In contrast, no income differences were found among part-time workers by self-employment, number of jobs worked, or type of occupation.

Gender differences were also observed in the relationship between income and some types of alternative employment. Among full-time male workers, self-employment was associated with higher income and working in multiple jobs was associated with lower income. These results did not apply to their female counterparts. Also, even among the alternatively employed, there were gender differences in income. For example, full-time self-employed men earned more than their female counterparts ($43,600 vs. $29,800). And within each occupation type, men earned more than their female counterparts. Clearly, a gender gap in earnings persists even among those with various types of employment.

While the 1992–93 bachelor's degree recipients in alternative employment generally had fewer benefits and often had lower incomes, the analysis also shows that they often gave different reasons for choosing their jobs. Therefore, their satisfaction with their work might depend on which job characteristics are being considered. For example, part-time workers were less likely than full-time workers to be very satisfied with their job security (55 vs. 65 percent), fringe benefits (36 vs. 56 percent), and promotion opportunities (28 vs. 40 percent). However, there were no differences found between full-time and part-time workers' satisfaction with pay, job challenge, working conditions, and relationships with coworkers.

Foreword

This report describes the employment experiences of 1992–93 bachelor's degree recipients in spring 1997, focusing on part-time employment, self-employment, employment in multiple jobs, employment in clerical and support occupations, and employment in field professions. Background characteristics associated with these types of alternative employment are explored, including an examination of differential participation in these types of arrangements by gender. In addition, the report examines differences in other employment characteristics, benefits, and satisfaction by alternative employment.

This report uses data from the 1992/93 Baccalaureate and Beyond Longitudinal Study (B&B:93/97). The B&B:93/97 study is the longitudinal component of the 1993 National Postsecondary Student Aid Study (NPSAS:93), a nationally representative sample that includes students enrolled in all types of postsecondary institutions, ranging from 4-year colleges and universities to less-than-2-year vocational institutions. The B&B:93/97 cohort consists of students who received bachelor's degrees during the 1992–93 academic year. The cohort was followed up in spring 1994 and again in spring 1997. This and other reports using this data set can be accessed and downloaded from the NCES Web Site (nces.ed.gov).

The estimates presented in the report were produced using the NCES Data Analysis System (DAS), a microcomputer application that allows users to specify and generate tables, for the B&B:93/97 study. The DAS produces the design-adjusted standard errors necessary for testing the statistical significance of differences among estimates. Researchers are encouraged to use the B&B:93/97 data for their own analysis as well. For more information on the DAS and analysis with B&B:93/97, readers should consult appendix B of this report.

Acknowledgments

The authors are grateful for the contributions of staff members at MPR Associates, NCES and other U.S. Department of Education offices, and nongovernmental agencies. At MPR Associates, Kathryn Rooney assisted in the research, analysis, and technical production of the report. Laura Horn provided valuable guidance throughout the entire process. Expert assistance in the production of the report was supplied by Francesca Tussing, Eugenia Martinez, Patti Gildersleeve, and Wes Nations under the direction of Barbara Kridl. Andrea Livingston and Robin Henke provided helpful editorial and substantive reviews. We also appreciate comments and suggestions provided by Lutz Berkner and Susan Choy.

At NCES, C. Dennis Carroll and Paula Knepper guided the report, and Karen O'Conor provided thorough oversight in the adjudication process. We also appreciate the input of the other reviewers, including Steve Broughman and Lisa Hudson of NCES, Dan Goldenberg of Planning and Evaluation Services in the U.S. Department of Education, Christine Marr of the American Council on Education, and Sally Dillow of the Education Statistics Services Institute.

Table of Contents

	Page
Executive Summary	iii
Foreword	ix
Acknowledgments	x
List of Tables	xii
List of Figures	xiv
Introduction	1
Data and Methods	3
Organization of the Report	4
Participation in Alternative Employment	7
The Prevalence of Alternative Employment	7
Demographic, Family, and Academic Characteristics	7
Relationships Among Types of Alternative Employment	18
Alternative Employment 1 and 4 Years After College Completion	22
Participation in Alternative Employment After Controlling for Covariation	27
Alternative Employment and Other Labor Market Experiences	39
Reasons for Taking a Job	39
Job Benefits	41
Income	44
Job Satisfaction	48
Conclusion	53
References	55
Appendix A—Glossary	57
Appendix B—Technical Notes	71

List of Tables

Table		Page
1	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by demographic background characteristics and gender: 1997	10
2	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by family status and gender: 1997	13
3	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by institutional and academic characteristics: 1997	15
4	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by job characteristics: 1997	19
5	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by job characteristics and gender: 1997	20
6	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1994 and 1997	23
7	Percentage distribution of 1992–93 bachelor's degree recipients according to employment and enrollment status in 1997, by employment and enrollment status and job characteristics in 1994	24
8	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment in 1997, by employment and enrollment status and job characteristics in 1994	25
9	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were self-employed in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table	29
10	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were employed part time in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table	31
11	Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were working in multiple jobs in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table	33

Table **Page**

12 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in clerical and support occupations in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table 35

13 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in field professions in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table 37

14 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by job characteristics: 1997 41

15 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who received various job benefits, by job characteristics and employment status: 1997..... 42

16 Income of employed 1992–93 bachelor's degree recipients not enrolled, by job characteristics and employment status: 1997 45

17 Income of employed 1992–93 bachelor's degree recipients not enrolled, by job characteristics, employment status, and gender: 1997 46

18 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were very satisfied with various aspects of their jobs, by job characteristics and employment status: 1997..... 49

B1 Standard errors for table 2: Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by family status and gender: 1997 74

List of Figures

Figure **Page**

Executive Summary Figures

A Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1997 iv

B Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1994 and 1997 vi

C Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by alternative working arrangement: 1997 vii

Text Figures

1 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1997 8

2 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1997 9

3 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were employed part time, by family status and gender: 1997 14

4 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in clerical and support or field professions, by undergraduate major: 1997 17

5 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1994 and 1997 22

6 Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by alternative working arrangement: 1997 40

7 Percentage of full-time employed 1992–93 bachelor's degree recipients not enrolled who had various job benefits, by alternative working arrangement: 1997 43

8 Percentage of full-time employed 1992–93 bachelor's degree recipients not enrolled who were very satisfied with various aspects of their employment, by self-employment status: 1997 51

Introduction

Today's bachelor's degree recipients are entering a very different labor market than that of their predecessors 30 years ago. As the United States economy has evolved and companies increasingly compete in a global marketplace, employers are seeking a more flexible workforce. "Individuals are now less likely to stay with one company for the duration of their career and employers are investing less in maintaining a stable workforce" (Callaghan and Hartmann 1991, p. 1; Cappelli et al. 1997). Instead, these individuals are finding alternative employment arrangements, some of which have been described as the *contingent* or *alternative* workforce. These terms have been used to describe temporary, part-time, on-call, contract, or self-employment, with "contingent work" referring specifically to those workers who respond to the expansion or contraction of the labor force (Cohany 1998; Hipple 1998; Mangan 2000). According to the Bureau of Labor Statistics (2001), contingent workers currently make up approximately 4 percent of total employment in the United States. Callaghan and Hartmann (1991) estimate that almost one in five U.S. employees are part-time workers. However, precise estimates of the number of alternative workers in the United States may vary according to the particular study, partly because different studies look at different types of alternative employment.

Previous literature has compared the diverse characteristics and experiences of traditional workers in the general population with those of alternative workers (Cohany 1998; Kalleberg, Reskin, and Hudson 2000; Mangan 2000; Polivka 1996b). These two groups of workers tend to differ in myriad ways. For example, Cohany (1998) found differences and inequalities between women and men in alternative employment, where "among independent contractors (those who are self-employed), men's earnings were more than 50% higher than women's, while within traditional workers, the difference was 28%" (p. 7). Research also shows that the majority of contingent workers (specifically part-time and temporary workers) are minorities, women, and younger than 24 years old (Callaghan and Hartmann 1991; Polivka 1996b). In addition, part-time employees are more likely than full-time workers to have occupations in such areas as sales, service, and administrative support and to have unskilled/nonprofessional positions (Callaghan and Hartmann 1991). However, research has also found that many nontraditional workers are employed in high-skilled jobs (Hipple 1998).

Studies have explored the various reasons that employees choose alternative working arrangements. According to the Bureau of Labor Statistics (2001), about one-half (52 percent) of the contingent workforce would have preferred to be in a more traditional job. This statistic suggests that the other half did *not* prefer a more traditional job. In addition, about 90 percent of part-time workers are classified as working part time for noneconomic reasons (Bureau of Labor Statistics 2002). Thus, some individuals work in alternative employment voluntarily, while others do not. There are many reasons why workers might choose an alternative job, including having a flexible work schedule, receiving supplemental income, and having an opportunity to explore different jobs or fields (Rothstein 1996). However, workers may also take an alternative position because they were unable to find full-time traditional work. These alternative jobs often have fewer benefits such as health insurance, opportunities for promotion, and job stability (Lester 1996).

How do college graduates fit into this picture of the alternative workforce? Numerous studies have examined the employment benefits of earning a bachelor's degree, and concluded that higher levels of education sharply increase an individual's earning potential and employment opportunities (Cappelli et al. 1997). The relationship of education to employment outcomes is largely mediated through the types of occupations for which a college degree qualifies a worker. For example, in 1992, 71 percent of workers ages 22 through 65 who had a bachelor's degree or higher were employed in professional, managerial, or technical jobs, while 6 percent of college graduates worked in service, laborer, or farm occupations (Decker, Rice, and Moore 1997). Even among college graduates, who constitute about one-quarter of the adult labor force (Bureau of Labor Statistics 2001), several studies have demonstrated the labor market advantage that students who concentrate in applied fields, such as business and engineering, experience with respect to higher salaries and full-time employment (Grogger and Eide 1995; Pascarella and Terenzini 1991; Rumberger and Thomas 1993).

Yet 40 percent of 1992–93 bachelor's degree recipients in 1997 indicated that a bachelor's degree was not required for their job (Horn and Zahn 2001).[1] In 1997, bachelor's degree recipients made up the largest percentage of the contingent workforce (Hipple 1998), and according to the 2001 Current Population Survey, they continue to represent a large proportion of these workers (25 percent; Bureau of Labor Statistics 2001). In addition, more and more bachelor's degree recipients are working in occupations that historically were not held by college graduates (Decker, Rice, and Moore 1997). The fact that the number of bachelor's degree recipients in nontraditional positions is substantial raises important questions. For example, what

[1]It is not clear, however, whether this means that a college education was not necessary to perform the work or that a bachelor's degree was not listed as a requirement to obtain the job.

employment benefits are available to these employees, and how do they differ from those among traditional workers?

Data and Methods

The data set used for this study is the 1992/93 Baccalaureate and Beyond Longitudinal Study Second Follow-up (B&B:93/97), representing college graduates who received their bachelor's degrees in academic year 1992–93.[2] Survey participants were sampled from the National Postsecondary Student Aid Study (NPSAS:93) and were first surveyed in their senior year of college. They were subsequently followed up in 1994 and 1997, approximately 1 year and 4 years after graduation.

The data from B&B:93/97 are particularly appropriate for this report because this data set monitors the progress of a sample of all bachelor's degree recipients from 1992–93, not just those in a particular age cohort, and has follow-ups timed to describe their transitions into the labor force or other activities following graduation. The data include information on the 1994 and 1997 employment status of these college graduates, including the extent to which they participate in various types of alternative employment. In addition, respondents reported on various aspects of their job satisfaction, job security, working conditions, and salary. However, employment situations in the first year after college may not yet be stable because recent graduates are deciding whether to pursue graduate study, a particular career, or other activities. Therefore, although one section of the analysis does compare alternative employment in 1994 and 1997, the focus of this report is on graduates' employment experiences 4 years after completing college.

The analysis is generally restricted to those sample members who were employed in April 1997, approximately 4 years after they completed their bachelor's degrees, and who were not enrolled in graduate school in 1997 (although they could have had some post-baccalaureate education between college completion and 1997). Various types of alternative employment, especially part-time employment, are likely to be prevalent among bachelor's degree recipients who are enrolled for further study. In this report, they are eliminated so as not to confound the differences in graduates' employment experiences with enrollment. The analysis also pays particular attention to gender differences associated with alternative employment and discusses such differences when they are relevant. Finally, because the data set includes only bachelor's degree recipients, it is not possible to compare those who worked in alternative employment arrangements and occupations with workers in the general population.

[2]While college completion rates are higher for younger cohorts, this sample still represents a small proportion of the labor force.

Information about several types of alternative employment are available in B&B:93/97. Drawing upon these data, this analysis examines both *working arrangements* and *occupation types*. Alternative working arrangements are distinct from alternative occupation types, but both are considered alternative employment. *Alternative working arrangements* include self-employment, part-time employment, and employment in multiple jobs. Because these three types of working arrangements are not mutually exclusive, an aggregate variable indicating whether or not the respondent was in *any* of these three working arrangements is also included. In addition, the analysis addresses respondents' *occupation type*, exploring the extent to which bachelor's degree recipients work in fields other than traditional professional occupations. Occupations considered "alternative" compared to the experiences of the majority of bachelor's degree recipients were those with characteristics that were not typical, such as those with lower levels of responsibility, involving long or unusual working hours, or taking place outside of a conventional office setting. Two categories of occupations are considered to be alternative employment for the purposes of this report: clerical and support occupations, and field professions.[3] Workers can be in only one of these two occupation groups. However, they may also have the other alternative working arrangements in their jobs. For example, someone working in a field profession may also work part time. The terms "alternative employment" or "nontraditional employment" are used interchangeably in this report to refer to the three types of working arrangements as well as the two types of occupations.

Organization of the Report

The first section of this report explores the prevalence of alternative employment among employed bachelor's degree recipients who are not enrolled in postsecondary education. This section looks at which bachelor's degree recipients were most likely to work in alternative jobs with respect to student demographic characteristics such as gender, race/ethnicity, age, family income, and dependency status. In addition, it assesses whether working in alternative employment is related to various types of family and academic characteristics, such as marital status, single parenthood, the type of institution at which the bachelor's degree was awarded, undergraduate major, and cumulative grade-point average (GPA). It then investigates differences in the patterns of alternative employment between 4 years after college and 1 year after college. Finally, because some of the variables discussed here may be interrelated, multiple linear

[3]The specific occupational categorization available in the data as well as the aggregated groups used in this report are likely to contain some variation, so that all respondents in the alternative occupation groups may not have alternative characteristics in their jobs. For the purposes of this report, "clerical and support" occupations include such jobs as secretarial work and other clerical or support services work. "Field professions" include jobs such as those in farming and forestry, protective services, or health and recreation services, professions which are likely to involve long or nontraditional hours or work outside of a conventional office setting. See the glossary for complete information about the occupational groups.

BEST COPY AVAILABLE

regression techniques are used to show how alternative employment is associated with the other variables after taking into account covariation.

The second section provides a comparison of bachelor's degree recipients who are in alternative employment with those who are not. It addresses the job characteristics of alternative workers and how they differ from those in traditional, professional occupations. In this section, several types of comparisons are made between alternative and traditional workers, focusing on the reasons they give for taking their jobs, their job benefits, their salaries, and finally their job satisfaction. For many of the comparisons, results are analyzed separately for full- and part-time workers because of the known differences between these two groups with respect to their benefits and salaries.

Participation in Alternative Employment

The Prevalence of Alternative Employment

As discussed in the introduction, today's labor market does not necessarily guarantee a prospective employee a traditional 9 to 5 job, nor is this type of employment the only option. About two-thirds (68 percent) of employed bachelor's degree recipients who were not enrolled for further study worked in jobs considered traditional for college graduates—that is, they worked full time for someone else in one professional job.[4] Figure 1 shows the percentage of 1992–93 bachelor's degree recipients, employed but not enrolled in 1997, who reported working in alternative jobs. The findings suggest that being self-employed, working part time, and being employed in multiple jobs were each relatively uncommon for this cohort: 5 percent were self-employed, 5 percent were employed part time, and 7 percent worked in multiple jobs. Overall, 15 percent of 1992–93 bachelor's degree recipients had at least one of these three types of working arrangements. Thirteen percent were employed in clerical/support occupations, and an additional 8 percent were employed in field professions.

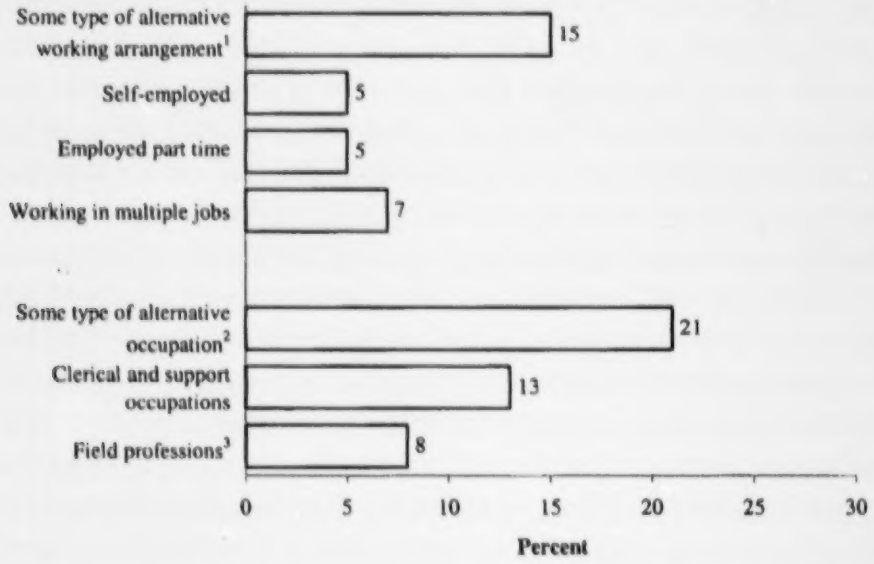
Demographic, Family, and Academic Characteristics

Gender

Gender was associated with many types of alternative employment among 1992–93 college graduates (figure 2). These findings are consistent with those in the current literature on this topic (Callaghan and Hartmann 1991; Polivka 1996a). Among 1992–93 bachelor's degree recipients who were employed but not enrolled in 1997, women were more likely than men to have some type of alternative working arrangement (16 vs. 14 percent). But the gender differences depended on the type of alternative working arrangement being considered. Women were more likely than men to have part-time employment (7 vs. 3 percent) or multiple jobs (8 vs. 5 percent), while men were more likely than women to be self-employed (8 vs. 3 percent). Women were also more likely than men to work in clerical or support occupations (16 vs. 9 percent), while men were more likely than women to work in field professions (13 vs. 5 percent)

[4]U.S. Department of Education, National Center for Education Statistics, 1992/93 Baccalaureate and Beyond Longitudinal Study (B&B:93/97), Data Analysis System.

Figure 1.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1997



[1]Includes self-employment, part-time employment, and employment in multiple jobs. These categories do not sum to the total because they are not mutually exclusive.

[2]Detail may not sum to total due to rounding.

[3]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

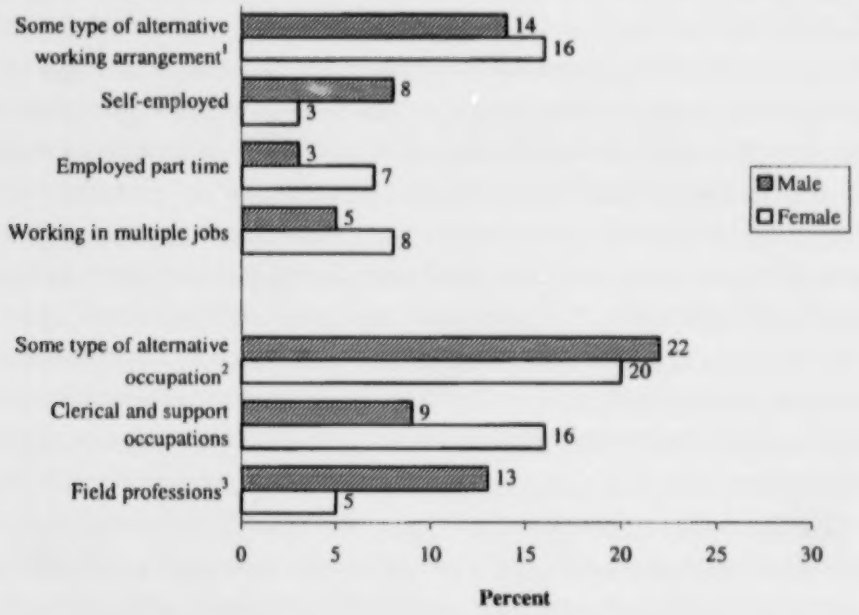
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

These results are consistent with the gender differences in occupation types that are present in the labor force in general (Dennis 1996; Jacobs 1989).

Other Demographic Characteristics

Within gender groups, alternative working arrangements were related to several demographic characteristics of women, but these relationships were not detected among men (table 1). Older women were more likely to work part time than younger women; for example, 12 percent of women age 30 or older worked part time, compared with 5 percent of women age 22 or younger. Previous research has found that contingent workers tend to be younger (Callaghan and Hartmann 1991; Polivka 1996b). However, the population described in those studies includes workers who did not graduate college as well as current students, two groups that were excluded from this analysis. Thus, the differences between the results of the current

Figure 2.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1997



[1]Includes self-employment, part-time employment, and employment in multiple jobs. These categories do not sum to the total because they are not mutually exclusive.

[2]Detail may not sum to total due to rounding.

[3]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

study and those of previous studies may be due to differences in the samples and definitions used. Among bachelor's degree recipients who are not enrolled, recent female college graduates who are older may have more difficulty finding full-time work or, because they are more likely than their younger peers to be married and have children,[5] may choose to work part time for family reasons (Reskin and Padavic 1994).

In addition, White women were more likely than Black women to have some type of alternative working arrangement (18 vs. 10 percent) or, more specifically, to work part time (8 vs. 2 percent). Again, these differences were not detected among men.

[5]U.S. Department of Education, National Center for Education Statistics, 1992/93 Baccalaureate and Beyond Longitudinal Study (B&B:93/97), Data Analysis System.

Table 1.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by demographic background characteristics and gender: 1997

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions*
			Male			
Total	14.2	7.5	2.7	5.3	9.0	12.8
Race/ethnicity						
American Indian/Alaska Native	(#)	(#)	(#)	(#)	(#)	(#)
Asian/Pacific Islander	7.3	1.7	0.0	5.5	11.9	4.2
Black, non-Hispanic	14.4	6.5	3.7	5.4	16.4	11.1
Hispanic	14.4	9.9	3.6	3.8	13.0	9.8
White, non-Hispanic	14.6	7.8	2.8	5.4	8.3	13.6
Age						
22 or younger	14.2	8.0	2.9	4.6	9.2	11.6
23–24	13.5	7.2	2.6	5.3	9.8	13.5
25–29	14.2	7.6	1.6	6.9	8.9	14.5
30 or older	15.3	6.8	3.7	5.6	6.7	13.3
Family income and dependency status						
Dependent students	14.1	7.8	3.0	4.9	9.6	11.9
Lowest income quartile	13.9	8.3	2.5	5.2	9.1	12.0
Middle income quartiles	12.6	6.3	2.8	5.6	8.8	12.9
Highest income quartile	16.0	9.4	3.4	4.0	10.6	10.7
Independent students	14.2	7.1	2.3	6.0	8.1	14.1
Parents' highest education						
High school or less	14.7	7.9	2.3	6.4	9.1	11.9
Some college	11.8	7.4	1.8	3.6	10.8	13.2
Bachelor's degree	13.0	7.0	2.1	4.9	9.2	14.1
Advanced degree	15.8	7.2	4.6	5.4	8.4	12.0

See footnotes at end of table.

Table 1.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by demographic background characteristics and gender: 1997—Continued

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions*
			Female			
Total	16.5	3.3	7.4	8.0	15.7	4.6
Race/ethnicity						
American Indian/Alaska Native	41.1	10.6	19.6	14.7	13.5	0.0
Asian/Pacific Islander	9.4	1.6	4.4	5.8	14.5	1.9
Black, non-Hispanic	10.0	1.1	1.6	7.6	20.4	4.9
Hispanic	11.0	4.1	6.6	3.6	12.4	2.9
White, non-Hispanic	17.5	3.4	8.1	8.4	15.4	4.7
Age						
22 or younger	13.3	2.3	4.9	7.6	16.6	4.9
23–24	16.2	3.5	7.5	7.5	14.6	4.2
25–29	18.3	5.0	10.5	5.9	14.3	6.2
30 or older	23.6	4.8	11.9	10.3	15.4	3.5
Family income and dependency status						
Dependent students	12.8	2.3	5.0	7.1	15.9	4.7
Lowest income quartile	12.8	2.6	5.6	7.1	23.3	3.2
Middle income quartiles	13.8	1.6	5.3	8.3	13.3	4.5
Highest income quartile	11.6	2.9	4.3	5.8	15.9	5.5
Independent students	21.7	4.7	10.9	9.2	15.4	4.4
Parents' highest education						
High school or less	16.8	3.4	7.5	8.2	18.3	4.5
Some college	18.1	4.7	7.7	8.5	15.0	5.6
Bachelor's degree	15.8	3.0	7.3	8.1	13.8	3.8
Advanced degree	15.9	2.0	7.2	7.9	14.7	4.8

#Too small to report.

*These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Within gender groups, there were few differences in occupation types by demographic characteristics. Asian/Pacific Islander men were less likely than White men to work in a field profession (4 vs. 14 percent). However, this result was not detected among women.

This report also examined the dependency status of bachelor's degree recipients and, for dependent students, their family income in their final year of college. Women who were independent students as seniors were more likely than those who were dependent to be self-employed (5 vs. 2 percent), to work part time (11 vs. 5 percent), or to work in multiple jobs (9 vs. 7 percent) after graduation, but these patterns were not detected among men. Among dependent students, women from lower-income families were more likely than women from families with higher incomes to hold clerical positions, but this difference was not detected among men. On the other hand, men whose parents had more education were more likely than those whose parents had less education to work part time, but this relationship was not observed for women.

Family Characteristics

Family characteristics—marital status, dependents, and single parenthood—were related to many types of alternative working arrangements among female bachelor's degree recipients, but few such associations were detected among their male counterparts (table 2). Among both men and women, marital status was related to working part time (figure 3). However, while married women were more likely than single women to work part time (10 vs. 4 percent), married men were *less* likely to work part time than their single counterparts (2 vs. 4 percent). In addition, single women were more likely than married women to have multiple jobs (9 vs. 7 percent), but this association was not detected among men. Women with dependents were more likely than women without dependents to have some type of alternative working arrangement (24 vs. 13 percent), specifically part-time work (15 vs. 4 percent) or self-employment (5 vs. 3 percent). In contrast, among men, having dependents was not found to be associated with alternative working arrangements.

When family characteristics were considered, there were relatively few differences in the types of occupations held by college graduates. Married men and male single parents were less likely than other men to have clerical positions (8 vs. 10 percent and 2 vs. 9 percent, respectively), but this pattern was not detected among women. Single women were more likely than married women to have field professions (6 vs. 3 percent), but this difference was not detected among men.

Institutional and Academic Characteristics

Many aspects of the academic experiences of 1992–93 bachelor's degree recipients were considered, including the sector of the bachelor's degree-granting institution, whether the respondent attended multiple institutions, the graduation rate of the bachelor's degree-granting

Table 2.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by family status and gender: 1997

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions[1]
			Male			
Total	14.2	7.5	2.7	5.3	9.0	12.8
Marital status						
Married[2]	13.9	8.1	1.7	5.3	7.6	13.2
Never married, divorced, or widowed	14.3	7.0	3.7	5.2	10.3	12.5
Any dependents						
Had dependents	14.2	7.1	1.8	6.3	8.0	15.6
Did not have dependents	14.1	7.6	3.0	5.0	9.3	12.0
Single-parent status						
Single parent	17.1	5.1	9.4	5.1	2.3	11.1
Not a single parent	14.1	7.6	2.6	5.3	9.1	12.9
			Female			
Total	16.5	3.3	7.4	8.0	15.7	4.6
Marital status						
Married[2]	18.1	3.9	10.2	6.8	15.0	3.4
Never married, divorced, or widowed	14.7	2.6	4.3	9.3	16.4	5.9
Any dependents						
Had dependents	24.3	4.9	15.3	8.0	14.4	3.8
Did not have dependents	13.5	2.6	4.4	8.0	16.2	4.9
Single-parent status						
Single parent	19.8	5.2	4.9	11.5	14.6	8.8
Not a single parent	16.3	3.2	7.6	7.8	15.7	4.3

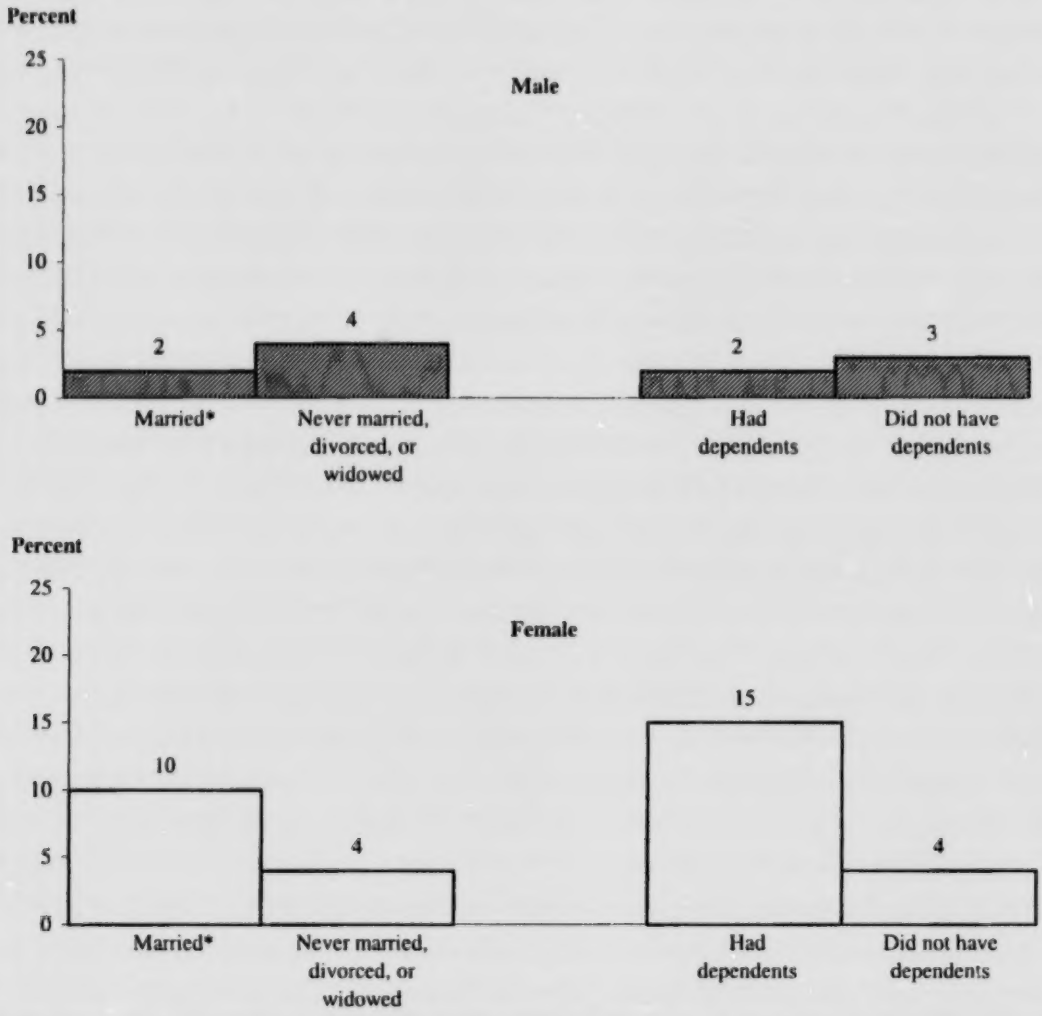
[1]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

[2]Includes those who are living with a partner.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

institution, time to degree, undergraduate major, grade-point average (GPA), and additional education (table 3). Several of these factors were associated with various types of alternative employment. The time it took to complete the bachelor's degree, undergraduate major, GPA, and further enrollment were all associated with some types of alternative employment. Among

Figure 3.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were employed part time, by family status and gender: 1997



*Includes those who are living with a partner.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

1992–93 bachelor's degree recipients, the longer it took to complete a bachelor's degree, the more likely they were to have some type of alternative working arrangement. Specifically, those who took 6 years or more to complete the degree were more likely than those who took 5 years or less to report working part time (7 vs. 4 percent).

Table 3.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by institutional and academic characteristics: 1997

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions[1]
Total	15.4	5.3	5.2	6.7	12.6	8.4
Type of institution where received degree						
Public doctorate-granting	13.6	4.9	4.7	5.9	11.6	7.9
Public 4-year nondoctorate-granting	16.7	4.4	5.7	8.4	12.2	9.0
Private not-for-profit doctorate-granting	16.7	7.1	4.9	6.2	12.0	7.0
Private not-for-profit 4-year nondoctorate-granting	17.8	6.5	6.0	7.1	15.1	10.2
Other	10.5	2.4	5.8	5.8	16.7	7.2
Whether attended multiple institutions						
Attended multiple undergraduate institutions	16.7	5.5	5.7	7.3	11.5	8.2
Attended one undergraduate institution	13.8	4.9	4.7	6.0	13.8	8.6
Institutional graduation rate[2]						
33 percent or below	13.6	4.1	5.8	6.0	12.6	9.1
34–67 percent	15.9	5.6	5.1	6.9	13.5	9.2
68 percent or above	14.0	5.5	4.2	6.1	10.1	6.3
Time to degree completion						
4 years or less	13.8	4.8	4.1	6.3	15.3	7.4
More than 4 and up to 5 years	13.7	5.3	4.0	5.9	11.4	8.4
More than 5 and up to 6 years	15.9	4.6	5.6	7.5	11.7	10.5
More than 6 years	18.3	6.3	7.1	7.1	11.7	9.5
Undergraduate major						
Business and management	10.7	6.6	2.3	2.9	16.5	6.5
Education	22.4	2.3	7.9	14.7	7.0	7.1
Engineering	7.6	4.6	1.6	1.7	1.8	9.5
Health professions	18.6	2.2	9.2	8.8	5.6	2.2
Public affairs/social services	16.2	3.9	3.4	10.8	15.3	26.0
Biological sciences	18.8	6.9	6.6	6.6	14.8	10.7
Mathematics and physical science	12.3	3.6	3.0	6.3	11.8	7.5
Social science	16.0	8.2	5.2	4.9	19.0	10.9
History	20.5	9.0	4.3	8.9	14.5	10.0
Humanities	20.0	5.5	10.1	8.6	14.8	8.0
Psychology	12.3	3.1	4.0	6.5	10.0	6.7
Other	17.1	6.0	6.5	7.1	13.4	10.4

See footnotes at end of table.

Table 3.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by institutional and academic characteristics: 1997—Continued

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions[1]
Cumulative grade-point average						
Under 2.5	12.2	6.4	3.7	3.8	14.1	15.5
2.5–2.99	13.7	5.7	3.1	5.9	15.9	10.8
3.0–3.49	15.5	5.2	5.1	7.2	12.0	7.8
3.5 and above	16.9	4.6	7.2	7.2	10.1	5.5
Additional educational attainment						
No postbaccalaureate degree/enrollment	14.9	5.6	5.0	6.0	13.4	8.8
Less than master's	18.4	2.8	6.3	11.4	12.6	7.3
Master's or above	18.0	3.6	6.6	10.3	5.8	6.0

[1]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

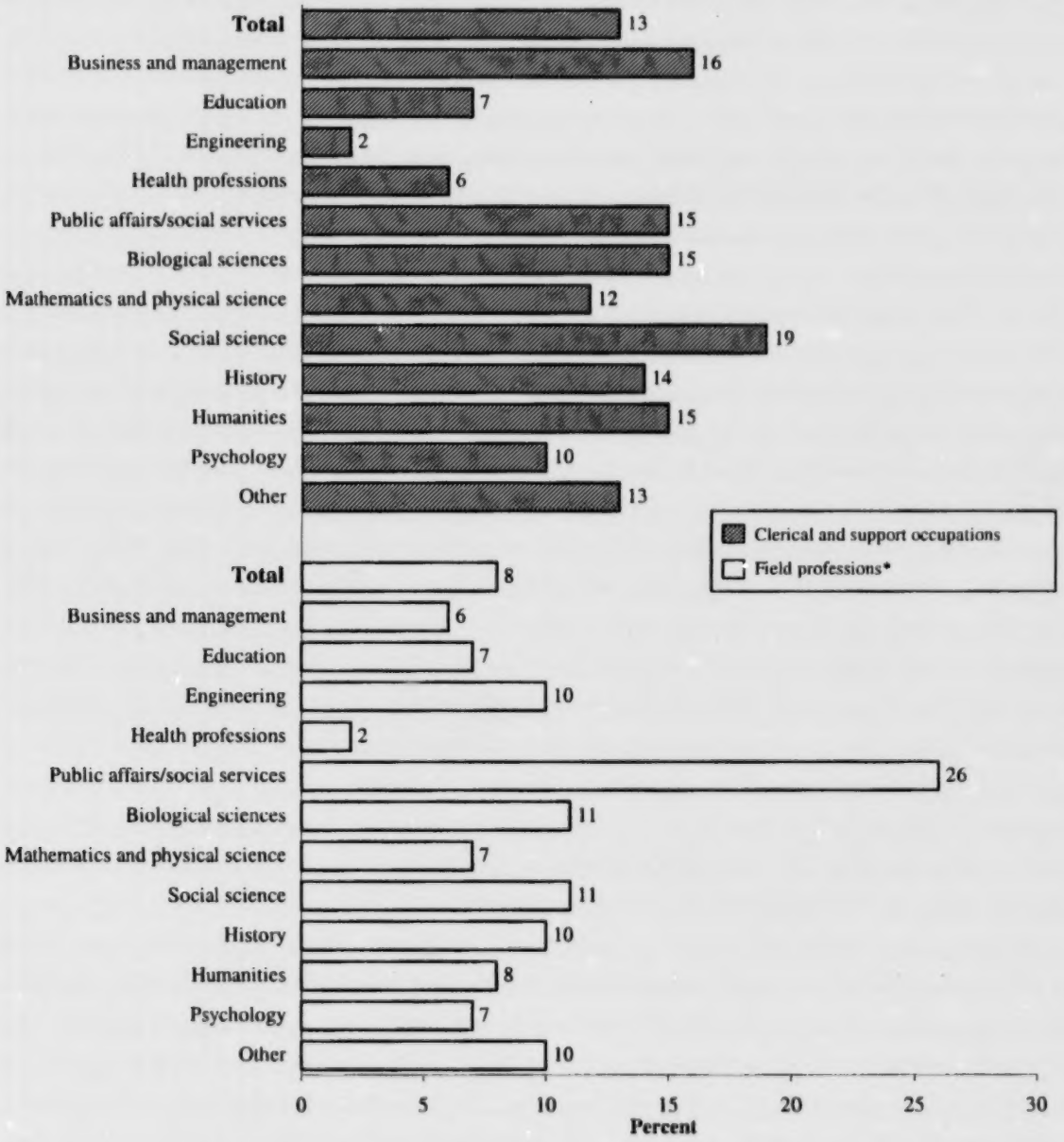
[2]Cohort graduation rate for 150 percent of expected time to degree completion reported by institutions in IPEDS. See appendix A for details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Several studies have shown that students who concentrate in applied fields such as business and engineering are more likely to work full time (Grogger and Eide 1995; Rumberger and Thomas 1993; Pascarella and Terenzini 1991). Consistent with the literature, this analysis found that bachelor's degree recipients who had majored in business or engineering were less likely than average to report having a part-time job (2 percent each vs. 5 percent). These groups were also less likely than average to report working in multiple jobs (2–3 percent vs. 7 percent overall), while education majors (15 percent) were more likely than average to have multiple jobs.

Because the fields of education, engineering, and health are applied fields in which students are preparing for specific professional careers, students with majors in these fields are particularly likely to be employed in them after completing college (Horn and Zahn 2001). By definition, the fields for which they have prepared (teaching, engineering, and medical professions) are included in the professional occupations. Consistent with this expectation, graduates who had majored in education, engineering, and health were less likely than average to work in clerical and support occupations (7, 2, and 6 percent, respectively, vs. 13 percent overall), while 19 percent of those with majors in social science reported working in these jobs (figure 4). In addition, health majors were also less likely than average to work in field

Figure 4.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in clerical and support or field professions, by undergraduate major: 1997



*These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

professions (2 vs. 8 percent). Furthermore, many graduates who majored in public affairs or social services have trained specifically for protective services (Horn and Zahn 2001), which are included in the field professions; those who had majored in public affairs or social services were indeed more likely than average to work in field professions (26 percent).

Among 1992–93 bachelor's degree recipients in 1997, as GPA increased, so did the prospect of having part-time employment. Because GPA is associated with attending graduate school (Clune, Nuñez, and Choy 2001), those students who work part time in the short term may be less attached to the labor force than others because they anticipate pursuing more education in the future. Alternatively, this relationship may result from the fact that female students, who had higher GPAs,[6] were also more likely to work part time (figure 2). In contrast, as GPA increased, the likelihood of having a clerical and support or field profession decreased.

Enrolling for more education after completing a bachelor's degree was associated with certain types of alternative employment. Those who had not enrolled in postbaccalaureate study were more likely than those who had some postbaccalaureate enrollment (but less than a master's degree) to be self-employed (6 vs. 3 percent). Those with no postbaccalaureate enrollment were *less* likely than those with any such enrollment to be working in multiple jobs (6 vs. 10–11 percent). Finally, those who had completed a master's degree or higher were less likely than others to be employed in clerical and support occupations (6 vs. 13 percent).

When taking other institutional and academic characteristics into account, there were relatively few differences in the working arrangements and occupation types of college graduates. Those who attended public doctorate-granting institutions were less likely than those attending private not-for-profit nondoctorate-granting institutions to have some type of alternative working arrangement (14 vs. 18 percent). In addition, those who cited attending multiple institutions were more likely to report such arrangements (17 vs. 14 percent). No differences were detected in the likelihood of bachelor's degree recipients having some type of alternative working arrangement by the overall graduation rate of their degree-granting institution.

Relationships Among Types of Alternative Employment

Several types of alternative employment were associated with each other (table 4). Part-time employment was positively associated with working in multiple jobs and being self-employed among 1992–93 bachelor's degree recipients. While 17 percent of those with multiple

[6]U.S. Department of Education, National Center for Education Statistics, 1992/93 Baccalaureate and Beyond Longitudinal Study (B&B:93/97), Data Analysis System.

Table 4.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by job characteristics: 1997

	Alternative working arrangement				Clerical and support occupations	Field professions[1]
	Any	Self-employed	Employed part time	Working in multiple jobs		
Total	15.4	5.3	5.2	6.7	12.6	8.4
Alternative working arrangement[2]						
Alternative arrangement	100.0	34.6	34.8	44.5	12.2	12.4
No alternative arrangement	(†)	(†)	(†)	(†)	12.8	7.7
Self-employment status						
Self-employed	100.0	100.0	12.4	6.1	9.0	15.6
Not self-employed	10.5	(†)	4.9	6.7	12.8	8.1
Employment status						
Full-time	10.4	4.8	(†)	5.8	12.5	8.0
Part-time	100.0	12.3	100.0	21.3	16.4	13.5
Number of jobs worked						
Worked more than one job	100.0	4.8	16.9	100.0	10.5	9.2
Worked one job	9.2	5.3	4.4	(†)	12.7	8.4
Occupation type						
Clerical and support occupations	14.7	3.7	6.8	5.6	100.0	(†)
Field professions[1]	22.5	9.6	8.5	7.3	(†)	100.0
Professional occupations	14.6	5.0	4.6	6.8	(†)	(†)

†Not applicable.

[1]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

[2]Includes self-employment, part-time employment, and employment in multiple jobs.

NOTE: Cells give the percentage of workers in a given row who also had the alternative employment type indicated in the column. For example, 12.3 percent of part-time workers were also self-employed.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

jobs were employed part time, 4 percent of those with only one job had part-time jobs. In addition, 12 percent of those who were self-employed worked part time, compared with 5 percent of others.

Having some type of alternative working arrangement was also associated with the types of occupations in which employed college graduates worked. Those in a field profession were more likely than professionals (or clerical and support workers) to report having some alternative

working arrangement (23 vs. 15 percent each). In particular, workers in field professions were more likely than those in professional occupations to be self-employed (10 vs. 5 percent) or to work part time (8 vs. 5 percent).[7]

When men and women were considered separately, some of the same relationships were present (table 5). For both men and women, working part time was associated with having multiple jobs and with being self-employed. Also, for both groups, being employed part time was associated with a higher likelihood of being in a field profession.

Table 5.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by job characteristics and gender: 1997

	Alternative working arrangement				Clerical and support occupations	Field professions[1]
	Any	Self-employed	Employed part time	Working in multiple jobs		
			Male			
Total	14.2	7.5	2.7	5.3	9.0	12.8
Alternative working arrangement[2]						
Alternative arrangement	100.0	53.7	19.4	38.1	9.3	17.6
No alternative arrangement	(†)	(†)	(†)	(†)	9.0	12.1
Self-employment status						
Self-employed	100.0	100.0	6.8	6.0	5.8	16.7
Not self-employed	7.1	(†)	2.4	5.2	9.3	12.6
Employment status						
Full-time	11.6	7.2	(†)	4.7	8.9	12.5
Part-time	100.0	18.8	100.0	24.3	14.3	26.2
Number of jobs worked						
Worked more than one job	100.0	8.5	12.6	100.0	9.1	16.0
Worked one job	9.3	7.5	2.2	(†)	9.0	12.7
Occupation type						
Clerical and support occupations	14.4	4.7	4.3	5.3	100.0	(†)
Field professions[1]	19.1	9.6	5.5	6.5	(†)	100.0
Professional occupations	13.1	7.4	2.1	5.0	(†)	(†)

See footnotes at end of table.

[7]Workers in field professions were also more likely than those in clerical and support occupations to be self-employed (10 vs. 4 percent).

Table 5.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by job characteristics and gender: 1997—Continued

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions[1]
			Female			
Total	16.5	3.3	7.4	8.0	15.7	4.6
Alternative working arrangement[2]						
Alternative arrangement	100.0	20.3	46.4	49.2	14.4	8.5
No alternative arrangement	(†)	(†)	(†)	(†)	16.2	3.7
Self-employment status						
Self-employed	100.0	100.0	23.7	6.3	15.5	13.5
Not self-employed	13.5	(†)	6.9	8.0	15.8	4.3
Employment status						
Full-time	9.4	2.7	(†)	6.8	15.8	4.0
Part-time	100.0	10.3	100.0	20.3	17.1	9.5
Number of jobs worked						
Worked more than one job	100.0	2.6	19.4	100.0	11.4	5.3
Worked one job	9.1	3.3	6.4	(†)	16.1	4.5
Occupation type						
Clerical and support occupations	14.9	3.2	8.0	5.8	100.0	(†)
Field professions[1]	31.0	9.6	16.1	9.3	(†)	100.0
Professional occupations	15.9	2.9	6.8	8.3	(†)	(†)

†Not applicable.

[1]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

[2]Includes self-employment, part-time employment, and employment in multiple jobs.

NOTE: Cells give the percentage of workers in a given row who also had the alternative employment type indicated in the column. For example, 18.8 percent of part-time male workers were also self-employed.

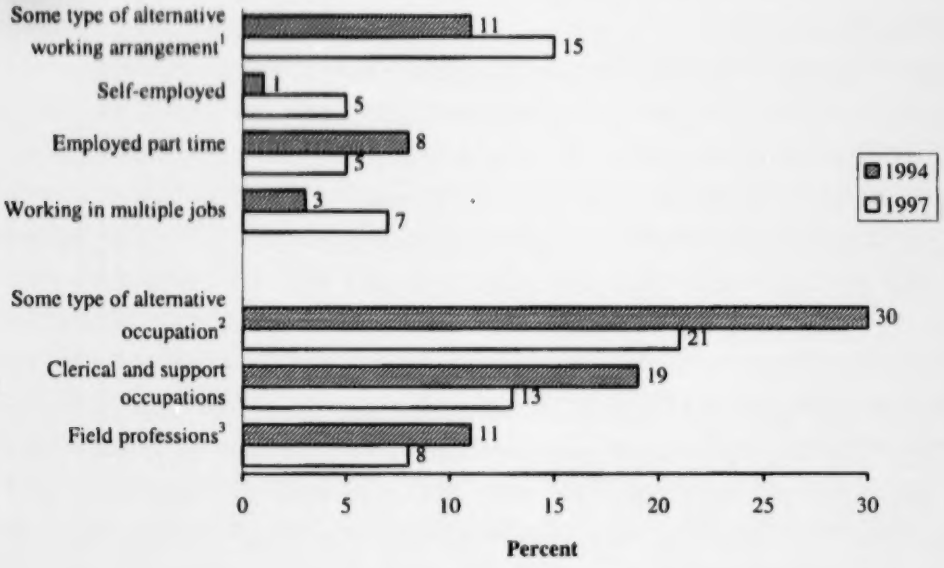
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

However, women with multiple jobs were less likely than women with one job to report having a clerical job (11 vs. 16 percent). In addition, self-employed women were more likely than women who were not self-employed to be working in field professions (13 vs. 4 percent), a pattern that was not detected among men.

Alternative Employment 1 and 4 Years After College Completion

How do college graduates' experiences of alternative employment differ 1 year after completing college compared with 4 years after college? This analysis examines the alternative employment experiences of 1992–93 bachelor's degree recipients for both points in time. Three kinds of analyses were conducted. The first analysis estimates the overall rates of graduates' participation in alternative employment in 1994 and 1997 (figure 5 and table 6). That is, those who were employed and not enrolled in 1994 were used to produce the estimates for 1994; those who were employed and not enrolled in 1997 were used to produce the estimates for 1997. The second analysis examines how these two groups overlap; that is, it looks at how employment and enrollment status in 1994 was related to employment and enrollment status in 1997 (table 7). In addition, it looks at how the alternative employment of workers in 1994 was related to their

Figure 5.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment: 1994 and 1997



[1]Includes self-employment, part-time employment, and employment in multiple jobs. These categories do not sum to the total because they are not mutually exclusive.

[2]Detail may not sum to total due to rounding.

[3]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Table 6.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by gender: 1994 and 1997

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions*
			1994			
Total	11.5	1.1	7.6	3.3	19.0	10.9
Gender						
Male	9.5	1.8	5.5	2.9	14.4	15.9
Female	13.2	0.6	9.4	3.6	22.9	6.8
			1997			
Total	15.4	5.3	5.2	6.7	12.6	8.4
Gender						
Male	14.2	7.5	2.7	5.3	9.0	12.8
Female	16.5	3.3	7.4	8.0	15.7	4.6

*These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

employment and enrollment status in 1997. Finally, the third analysis presents the relationship between alternative employment in 1994 and alternative employment in 1997 (table 8).[8]

Overall rates of participation in alternative employment differed between 1994 and 1997 (figure 5). In 1997, employed graduates who were not enrolled were more likely to have some type of alternative working arrangement than they were in 1994 (15 vs. 11 percent), but the differences between the 2 years varied according to the type of alternative employment held. Workers were more likely to have multiple jobs in 1997 than in 1994 (7 vs. 3 percent). This increase might relate to lifestyle changes such as marriage and children that create a greater need for additional income (Lester 1996). Alternatively, these workers might be making or investigating career transitions. The rate of self-employment also increased between 1994 and 1997 (1 vs. 5 percent). Gaining work experience, or accumulating the necessary capital, may account for more graduates becoming entrepreneurs. On the other hand, 1992–93 bachelor's degree recipients were less likely to work part time in 1997 than in 1994 (5 vs. 8 percent) and to have clerical (13 vs. 19 percent) or a field profession (8 vs. 11 percent).

[8]For this third analysis, however, it was necessary to condition upon employment and enrollment status in 1997 (table 8 is limited to those who were employed and not enrolled in 1997, regardless of their 1994 status).

Table 7.—Percentage distribution of 1992–93 bachelor's degree recipients according to employment and enrollment status in 1997, by employment and enrollment status and job characteristics in 1994

	1997 employment and enrollment status			
	Employed, not enrolled	Employed, enrolled	Not employed, enrolled	Neither
Total	76.3	13.0	4.7	6.1
1994 employment and enrollment status				
Employed, not enrolled	80.3	11.6	3.3	4.8
Employed, enrolled	65.1	24.9	5.6	4.5
Not employed, enrolled	59.7	11.2	19.4	9.7
Neither employed nor enrolled	64.3	10.6	4.8	20.3
Of those employed and not enrolled in 1994:				
Alternative working arrangement[1]				
Alternative arrangement	75.2	13.9	3.4	7.6
No alternative arrangement	81.1	11.2	3.2	4.5
Self-employment status				
Self-employed	92.0	4.0	0.0	4.0
Not self-employed	80.3	11.6	3.3	4.8
Employment status				
Full-time	81.0	11.4	3.2	4.4
Part-time	72.3	13.9	4.4	9.3
Number of jobs worked				
Worked more than one job	78.3	15.5	1.9	4.3
Worked one job	80.4	11.5	3.3	4.8
Occupation type				
Clerical and support occupations	79.2	10.5	4.4	5.9
Field professions[2]	80.7	10.5	4.1	4.7
Professional occupations	80.7	12.0	2.8	4.5

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

NOTE: Percentages may not add to 100.0 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Table 8.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment in 1997, by employment and enrollment status and job characteristics in 1994

	Alternative employment in 1997					
	Alternative working arrangement				Clerical and support occupations	Field professions[1]
	Any	Self-employed	Employed part time	Working in multiple jobs		
Total	15.4	5.3	5.2	6.7	12.6	8.4
1994 employment and enrollment status						
Employed, not enrolled	14.6	5.3	4.7	6.2	12.8	8.3
Employed, enrolled	16.9	3.9	6.4	9.0	8.2	6.9
Not employed, enrolled	20.8	4.9	8.0	10.5	7.4	7.6
Neither employed nor enrolled	19.6	7.7	9.1	7.1	21.7	14.0
Of those employed and not enrolled in 1994:						
Alternative working arrangement[2]						
Alternative arrangement	42.5	11.1	16.3	23.3	13.3	10.8
No alternative arrangement	11.2	4.6	3.3	4.1	12.7	8.1
Self-employment status						
Self-employed	55.1	44.8	19.7	9.5	4.9	15.4
Not self-employed	14.0	4.8	4.4	6.1	12.9	8.3
Employment status						
Full-time	13.3	5.3	3.6	5.7	12.5	8.4
Part-time	30.9	5.3	18.5	12.9	17.0	8.5
Number of jobs worked						
Worked more than one job	61.9	10.4	10.9	51.1	6.6	15.0
Worked one job	13.0	5.1	4.5	4.7	13.0	8.1
Occupation type						
Clerical and support occupations	10.7	4.0	3.3	4.3	35.8	4.8
Field professions[1]	20.3	8.6	5.4	9.2	10.4	43.2
Professional occupations	14.6	5.1	4.9	6.1	7.1	3.9

[1]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

[2]Includes self-employment, part-time employment, and employment in multiple jobs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Many of the gender differences in alternative employment that were present 1 year out of college persisted to 4 years after college (table 6). In 1994, women were more likely than men to have some type of alternative working arrangement, and particularly to work part time (9 vs. 6 percent) or to have clerical jobs (23 vs. 14 percent). On the other hand, men were more likely than women to have field professions (16 vs. 7 percent) or to be self-employed (2 vs. 0.6 percent). These findings all parallel the results for 1997 reported above. While women were more likely than men to have multiple jobs in 1997, no difference was detected in 1994.

The next part of the analysis looks at the relationship between employment and enrollment status of 1992–93 bachelor's degree recipients in 1994 and 1997. Table 7 shows graduates' employment and enrollment status in 1997 in terms of their 1994 status. The data show that employment and enrollment status in 1994 was related to their status in 1997; in general, graduates with a given combination of enrollment and employment arrangements in 1994 were more likely than others to be in the same category in 1997. For example, those who were employed and not enrolled in 1994 were more likely than other groups to also be in that category in 1997 (80 percent vs. 60–65 percent). However, regardless of 1994 status, 1992–93 bachelor's degree recipients were more likely to be employed and not enrolled in 1997 than to have any other status.

In addition, for those who were employed and not enrolled in 1994, their 1997 status is shown by their working arrangements and occupation types in 1994. Among respondents who were employed and not enrolled in 1994, those who had some type of alternative working arrangement in 1994 were *less* likely to be *still* employed and not enrolled in 1997 than those who were not employed in such arrangements (75 vs. 81 percent). However, the relationship varied depending on the type of alternative employment. Those who were self-employed in 1994 were more likely than others to be employed and not enrolled in 1997 (92 vs. 80 percent), while those who were employed part time were less likely to be in the same situation (72 vs. 81 percent). This may have occurred because they had plans to enter graduate school or pursue other interests, and therefore chose part-time employment shortly after graduation because they viewed their job as temporary. Alternatively, among those for whom part-time employment was involuntary in 1994, their lack of success in obtaining full-time work may have encouraged them to enroll for further education or to leave the labor market altogether. In fact, those who had some alternative working arrangement in 1994 were more likely than those who did not to be neither employed nor enrolled in 1997 (8 vs. 4 percent). In particular, those who were employed part time in 1994 were more likely than full-time workers to be neither employed nor enrolled in 1997 (9 vs. 4 percent). A third explanation is that women in particular who were employed part time may have left the labor force to focus on childrearing and other family responsibilities (Reskin and Padavic 1994).

Finally, the relationship of alternative employment in 1994 to alternative employment in 1997 was explored. Table 8 shows alternative employment status in 1997 by alternative employment status in 1994, for those graduates who were employed and not enrolled in 1997. Among those who were employed and not enrolled in 1997, having an alternative working arrangement in 1994 was associated with a greater likelihood of having such an arrangement in 1997. Forty-two percent of those with some type of alternative working arrangement in 1994 were in the same situation in 1997, compared with 11 percent of those without such arrangements in 1994. This pattern persisted for all types of alternative employment: 45 percent of those who were self-employed in 1994 also had this kind of work arrangement in 1997, compared with 5 percent of those who were not self-employed in 1994. About half (51 percent) of those who had multiple jobs in 1994 also did so in 1997, compared with 5 percent of those who did not have multiple jobs in 1994. In addition, part-time workers in 1994 were more likely than full-time workers to be working part time in 1997 (18 vs. 4 percent). About one-third (36 percent) of those who had clerical jobs in 1994 also did so in 1997, compared with 7–10 percent of those with other types of jobs. Also, 43 percent of those in a field profession in 1994 were still in these types of positions in 1997, compared with 4–5 percent of those in other occupations.

Participation in Alternative Employment After Controlling for Covariation

In previous sections, this report has shown several associations between alternative employment and demographic, family, and academic characteristics. In addition, this report has illustrated how some types of alternative employment are related to each other. For example, in the bivariate analyses, gender was associated with each type of alternative employment, while working part time was related to working multiple jobs and being self-employed. Nevertheless, some of these variables may be interrelated. To discern the unique relationships between the background variables and alternative employment while controlling for the relationships among the variables themselves, multiple linear regression techniques were used. For more information about this methodology, see appendix B.

Five analyses were conducted, one for each type of alternative employment (self-employment, part-time employment, multiple jobs, clerical and support occupations, and field professions). For each analysis, only variables that were associated with that type of alternative employment in the bivariate tables above were included in the model.[9] Therefore, the specific variables differ slightly across the five regression analyses.

[9]In cases where the analyses above were conducted separately for women and men, variables that were associated with a given type of alternative employment for either women or men were included in the multiple regression model for that type.

Tables 9–13 present the results of the regression analyses on alternative working arrangements and occupation types. The first column of each table contains the unadjusted percentages—that is, the percentages before taking into account the other variables, as shown above.[10] Regression coefficients were used to produce the adjusted percentages shown in the second column (holding the other variables constant). For each row variable in each table, the category in italics is the reference category for comparisons and tests of statistical significance. Numbers with asterisks in the first and second columns indicate that the percentage of workers in that category is significantly different from the percentage for the reference category. Rows containing asterisks in only one of the columns indicate cases in which the adjustment procedure leads to a different conclusion than one would reach based on the unadjusted percentages.

Table 9 shows the analysis of self-employment. After adjusting for the other variables in the table, women were still less likely than men to be self-employed. While education majors were less likely than social science majors to be self-employed both before and after taking other variables into consideration, the difference between majoring in health fields and majoring in social science was not detected once covariation was controlled. Part-time employees were still more likely to be self-employed than full-time workers, even after accounting for the relationships between part-time employment and other variables in the model. However, the relationships of race/ethnicity, postbaccalaureate educational attainment, and occupation type to self-employment were no longer detected after taking the other variables into consideration.

Women were also more likely to be employed part time than men both before and after adjusting for the interrelationships among the variables (table 10). In addition, workers with dependents were still more likely than those without dependents to be employed part time. Other types of alternative employment were also related to part-time employment both before and after the adjustment procedure: graduates who were self-employed or who worked in multiple jobs were still more likely to work part time, as were those in field professions compared with those in professional occupations. However, race/ethnicity, age, marital status, time to degree, and GPA were no longer associated with part-time employment.

The regression analysis of working multiple jobs revealed a unique result (table 11). Part-time workers remained more likely than full-time workers to have multiple jobs after taking other variables into account, consistent with the converse relationship described in the previous table. However, other variables that were associated with working multiple jobs in the cross tabulations discussed above had no detectable association with this type of alternative employment in the regression analysis.

[10]Because some of the ways in which these variables were related to alternative employment differed according to gender, the unadjusted percentages reported in tables 9–13 may not reflect the relationships described in the preceding section.

Table 9.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were self-employed in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Total	5.3	5.3	13.9	3.1
Gender				
Male	*7.5*	*7.3*	*(†)*	*(†)*
Female	3.3*	3.5*	-3.9	1.3
Race/ethnicity				
American Indian/Alaska Native	7.7	7.3	1.8	8.2
Asian/Pacific Islander	1.7*	2.0	-3.4	3.1
Black, non-Hispanic	2.9	3.5	-1.9	2.5
Hispanic	6.5	6.9	1.4	2.8
White, non-Hispanic	*5.5*	*5.4*	*(†)*	*(†)*
Family income and dependency status				
Dependent students				
Lower income quartile	4.9	5.5	-0.2	2.3
Middle income quartile	3.8	3.8	-1.9	1.6
Upper income quartile	6.1	6.0	0.3	1.7
Independent students	*4.8*	*5.7*	*(†)*	*(†)*
Any dependents				
Had dependents	*5.9*	*5.6*	*(†)*	*(†)*
Did not have dependents	5.3	5.1	-0.5	1.5
Undergraduate major				
Business and management	6.6	6.6	-1.6	2.3
Education	2.3*	2.9*	-5.3	-1.6
Engineering	4.6	3.3	-4.9	3.1
Health professions	2.2*	2.7	-5.5	3.0
Public affairs/social services	3.9	3.8	-4.4	3.7
Biological sciences	6.9	7.2	-1.0	4.0
Mathematics and physical science	3.6	3.4	-4.8	3.2
Social science	*8.2*	*8.2*	*(†)*	*(†)*
History	9.0	8.8	0.6	4.9
Humanities	5.5	5.4	-2.8	2.9
Psychology	3.1	3.9	-4.3	4.0
Other	6.0	5.9	-2.2	2.5
Additional educational attainment				
No postbaccalaureate degree/enrollment	*5.6*	*5.6*	*(†)*	*(†)*
Less than master's	2.8*	3.3	-2.3	2.8
Master's or above	3.6	3.6	-2.0	1.9

See footnotes at end of table.

Table 9.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were self-employed in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Employment status				
Full-time	*4.8*	*4.8*	*(†)*	*(†)*
Part-time	12.3*	13.3*	8.5	2.7
Occupation type				
Clerical and support occupations	3.7*	3.5	-4.6	2.7
Field professions[6]	*9.6*	*8.1*	*(†)*	*(†)*
Professional occupations	5.0*	5.2	-2.8	2.2

*$p \leq .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the B&B:93/97 Data Analysis System.

[3]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

[6]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Both before and after the adjustment procedure, women were more likely than men to work in clerical or support occupations (table 12). In addition, graduates who had majored in education, engineering, health fields, and psychology were less likely than social science majors to work in these jobs both before and after taking other factors into consideration. Those with no postbaccalaureate education continued to be more likely than those who had obtained a master's degree or more education to have a clerical position in this model as well. Finally, in the adjusted model, no relationship of family income and dependency status, institutional graduation rate, or time to degree with the likelihood of working in clerical and support occupations was detected.

Women remained less likely than men to work in field professions in the regression analysis (table 13). Workers who had majored in public affairs or social services were more likely than social science majors to be employed in field professions both before and after the adjustment procedure, as were students with low cumulative undergraduate GPAs (below 2.5) compared with those with high GPAs (3.5 or above). Part-time employees were more likely than full-time employees to work in field professions both before and after taking other factors into consideration. However, race/ethnicity, institutional graduation rate, and self-employment status were not found to be associated with field professions in the adjusted model.

Table 10.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were employed part time in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Total	5.2	5.2	14.5	4.0
Gender				
Male	*2.7*	*3.0*	*(†)*	*(†)*
Female	7.4*	7.2*	4.2	1.4
Race/ethnicity				
American Indian/Alaska Native	14.1	11.7	6.2	9.0
Asian/Pacific Islander	2.2*	3.8	-1.7	3.4
Black, non-Hispanic	2.3*	1.6	-3.9	2.8
Hispanic	5.4	5.0	-0.5	3.1
White, non-Hispanic	*5.5*	*5.5*	*(†)*	*(†)*
Age				
22 or younger	4.1*	4.9	-1.3	3.6
23–24	4.7*	5.3	-1.0	3.2
25–29	5.3	5.0	-1.2	2.5
30 or older	*8.7*	*6.2*	*(†)*	*(†)*
Family income and dependency status				
Dependent students				
Lower income quartile	4.4	5.5	0.6	3.0
Middle income quartile	4.2	5.5	0.6	2.4
Upper income quartile	3.8	5.5	0.6	2.5
Independent students	*4.1*	*4.9*	*(†)*	*(†)*
Marital status				
Married[6]	6.3*	5.3	0.1	1.4
Never married, divorced, or widowed	*4.0*	*5.2*	*(†)*	*(†)*
Any dependents				
Had dependents	*9.5*	*9.0*	*(†)*	*(†)*
Did not have dependents	3.7*	3.9*	-5.1	1.8
Time to degree completion				
4 years or less	4.1*	4.7	-1.0	3.4
More than 4 and up to 5 years	4.0*	5.2	-0.5	3.0
More than 5 and up to 6 years	5.6	6.0	0.3	3.2
More than 6 years	*7.1*	*5.6*	*(†)*	*(†)*

See footnotes at end of table.

Table 10.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were employed part time in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Undergraduate major				
Business and management	2.3*	2.8*	-6.9	2.6
Education	7.9	5.8	-3.9	3.0
Engineering	1.6*	4.4	-5.2	3.5
Health professions	9.2	7.8	-1.8	3.3
Public affairs/social services	3.4	1.9	-7.7	4.2
Biological sciences	6.6	6.6	-3.0	4.5
Mathematics and physical science	3.0	4.1	-5.6	3.6
Social science	5.2	5.9	-3.7	3.2
History	4.3	4.6	-5.1	5.4
Humanities	*10.1*	*10.6*	*(†)*	*(†)*
Psychology	4.0	3.7	-6.0	4.4
Other	6.5	6.5	-3.1	2.9
Cumulative grade-point average				
Under 2.5	3.7	4.4	-0.1	3.1
2.5–2.9	*3.1*	*4.4*	*(†)*	*(†)*
3.0–3.49	5.1*	5.3	0.8	1.6
3.5 and above	7.2*	6.1	1.7	1.9
Self-employment status				
Self-employed	12.4*	12.9*	8.1	2.9
Not self-employed	*4.9*	*4.8*	*(†)*	*(†)*
Number of jobs worked				
Worked more than one job	16.9*	15.6*	11.2	2.6
Worked one job	*4.4*	*4.5*	*(†)*	*(†)*
Occupation type				
Clerical and support occupations	6.8	7.1	-2.1	3.0
Field professions[7]	*8.5*	*9.2*	*(†)*	*(†)*
Professional occupations	4.6*	4.5*	-4.7	2.4

*$p < .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the B&B:93/97 Data Analysis System.

[3]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

[6]Includes those who are living with a partner.

[7]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Table 11.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were working in multiple jobs in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Total	6.7	6.8	5.2	4.3
Gender				
Male	*5.3*	*6.7*	*(†)*	*(†)*
Female	8.0*	6.9	0.2	1.6
Race/ethnicity				
American Indian/Alaska Native	10.7	9.2	2.3	10.4
Asian/Pacific Islander	5.6	7.0	0.1	3.9
Black, non-Hispanic	6.9	7.4	0.5	3.2
Hispanic	3.7*	3.1	-3.8	3.6
White, non-Hispanic	*7.0*	*6.9*	*(†)*	*(†)*
Family income and dependency status				
Dependent students				
Lower income quartile	6.4	6.3	-1.1	2.8
Middle income quartile	7.1	7.2	-0.2	1.9
Upper income quartile	4.9	5.2	-2.2	2.0
Independent students	*6.1*	*7.4*	*(†)*	*(†)*
Type of institution where received degree				
Public doctorate-granting	*5.9*	*6.1*	*(†)*	*(†)*
Public 4-year nondoctorate-granting	8.4*	7.8	1.6	2.0
Private not-for-profit doctorate-granting	6.2	6.7	0.6	2.4
Private not-for-profit 4-year nondoctorate-granting	7.1	7.3	1.2	2.2
Other	5.8	5.7	-0.4	4.3
Undergraduate major				
Business and management	2.9*	3.5	-4.7	3.0
Education	14.7	13.9	5.8	3.4
Engineering	1.7*	2.7	-5.5	4.0
Health professions	8.8	8.4	0.2	3.8
Public affairs/social services	10.8	10.7	2.6	4.8
Biological sciences	6.6	6.0	-2.2	5.2
Mathematics and physical science	6.3	6.5	-1.6	4.1
Social science	4.9	5.0	-3.1	3.7
History	8.9	8.9	0.7	6.2
Humanities	*8.6*	*8.1*	*(†)*	*(†)*
Psychology	6.5	6.7	-1.5	5.1
Other	7.1	6.9	-1.2	3.3

See footnotes at end of table.

Table 11.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were working in multiple jobs in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Cumulative grade-point average				
Under 2.5	*3.8*	*5.2*	*(†)*	*(†)*
2.5–2.99	5.9	7.4	2.2	3.5
3.0–3.49	7.2*	7.0	1.7	3.4
3.5 and above	7.2*	6.2	0.9	3.6
Additional educational attainment				
No postbaccalaureate degree/enrollment	*6.0*	*6.1*	*(†)*	*(†)*
Less than master's	11.4*	10.1	4.0	3.5
Master's or above	10.3*	10.3	4.1	2.5
Employment status				
Full-time	*5.8*	*6.0*	*(†)*	*(†)*
Part-time	21.3*	20.1*	14.1	3.4

*$p \leq .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the B&B:93/97 Data Analysis System.

[3]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

In summary, gender was related to most types of alternative employment arrangements and occupation types after controlling for other variables, with the exception of working in multiple jobs. Women were more likely than men to work part time or to work in a clerical position, while men were more likely to have work in a field profession or to be self-employed. In addition, undergraduate major was related to all types of alternative employment except for working in multiple jobs in the regression models. Some of the associations between types of alternative employment, such as the relationship between working part time and working in multiple jobs, also remained. In fact, employment status was related to self-employment, working in multiple jobs, and field professions both before and after the adjustment procedure.

Table 12.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in clerical and support occupations in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Total	12.6	12.6	12.8	5.0
Gender				
Male	*9.0*	*8.2*	*(†)*	*(†)*
Female	15.7*	16.4*	8.2	1.7
Family income and dependency status				
Dependent students				
Lower income quartile	*17.6*	*14.7*	*(†)*	*(†)*
Middle income quartile	11.2*	9.2	-5.5	3.1
Upper income quartile	13.3	11.7	-3.0	3.2
Independent students	12.0	9.9	-4.6	3.2
Institutional graduation rate				
33 percent or below	12.6	12.8	-0.6	2.4
34–67 percent	*13.5*	*13.4*	*(†)*	*(†)*
68 percent or above	10.1*	9.7	-3.7	2.1
Time to degree completion				
4 years or less	*15.3*	*14.1*	*(†)*	*(†)*
More than 4 and up to 5 years	11.4*	11.2	-2.9	2.0
More than 5 and up to 6 years	11.7	12.2	-1.9	2.7
More than 6 years	11.7	14.1	0.0	0.0
Undergraduate major				
Business and management	16.5	16.6	-2.7	3.2
Education	7.0*	5.5*	-13.8	3.6
Engineering	1.8*	5.6*	-13.6	4.2
Health professions	5.6*	4.3*	-15.0	4.0
Public affairs/social services	15.3	14.3	-4.9	5.1
Biological sciences	14.8	14.2	-5.1	5.5
Mathematics and physical science	11.8	12.6	-6.6	4.3
Social science	*19.0*	*19.2*	*(†)*	*(†)*
History	14.5	17.4	-1.8	6.7
Humanities	14.8	15.2	-4.1	3.9
Psychology	10.0*	8.5*	-10.7	5.4
Other	13.4	13.0	-6.2	3.5
Cumulative grade-point average				
Under 2.5	14.1	14.4	4.2	3.8
2.5–2.99	15.9*	15.3*	5.2	2.3
3.0–3.49	12.0	12.1	2.0	2.0
3.5 or above	*10.1*	*10.1*	*(†)*	*(†)*

See footnotes at end of table.

Table 12.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in clerical and support occupations in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Additional educational attainment				
No postbaccalaureate degree/enrollment	13.4*	13.3*	6.8	2.7
Less than master's	12.6*	12.4	5.9	4.4
Master's or above	*5.8*	*6.5*	*(†)*	*(†)*

*$p \leq .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the B&B:93/97 Data Analysis System.

[3]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Table 13.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in field professions in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Total	8.4	8.4	13.5	3.0
Gender				
Male	*12.8*	*12.9*	*(†)*	*(†)*
Female	4.6*	4.5*	-8.3	1.5
Race/ethnicity				
American Indian/Alaska Native	3.1*	3.4	-5.5	9.9
Asian/Pacific Islander	3.0*	4.2	-4.7	3.7
Black, non-Hispanic	8.9	6.9	-2.0	3.0
Hispanic	5.8	5.4	-3.5	3.4
White, non-Hispanic	*6.9*	*8.9*	*(†)*	*(†)*
Institutional graduation rate				
33 percent or below	9.1	9.4	0.5	2.1
34–67 percent	*9.2*	*8.9*	*(†)*	*(†)*
68 percent or above	6.3*	6.1	-2.8	1.8
Undergraduate major				
Business and management	6.5	5.7	-4.9	2.8
Education	7.1	8.9	-1.7	3.2
Engineering	9.5	6.6	-4.0	3.7
Health professions	2.2*	4.3	-6.3	3.6
Public affairs/social services	26.0*	26.2*	15.6	4.5
Biological sciences	10.7	10.9	0.3	4.8
Mathematics and physical science	7.5	6.8	-3.8	3.9
Social science	*10.9*	*10.6*	*(†)*	*(†)*
History	10.0	8.5	-2.1	5.9
Humanities	8.0	8.5	-2.1	3.5
Psychology	6.7	8.6	-2.0	4.8
Other	10.4	10.1	-0.5	3.1
Cumulative grade-point average				
Under 2.5	15.5*	13.8*	7.3	3.4
2.5–2.99	10.8*	9.6	3.1	2.0
3.0–3.49	7.8	8.1	1.7	1.8
3.5 and above	*5.5*	*6.5*	*(†)*	*(†)*
Self-employment status				
Self-employed	15.6*	12.9	4.8	3.2
Not self-employed	*8.1*	*8.1*	*(†)*	*(†)*

See footnotes at end of table.

Table 13.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in field professions in 1997, by selected characteristics, and the adjusted percentage after taking into account covariation of the other variables in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	Least squares coefficient[4]	Standard error[5]
Employment status				
Full-time	*8.0*	*8.0*	*(†)*	*(†)*
Part-time	13.5*	15.0*	7.0	3.3

*$p \leq .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the B&B:93/97 Data Analysis System.

[3]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

NOTE: These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Alternative Employment and Other Labor Market Experiences

Workers have a range of reasons for voluntarily or involuntarily working in alternative employment, balancing the disadvantages and benefits associated with particular jobs. As discussed in the introduction, about one-half of contingent workers indicate that they would prefer a more traditional, permanent job (Bureau of Labor Statistics 2001). But alternative employment is not limited to contingent work, and some workers may choose these arrangements or occupations because of the advantages they offer. Studies suggest a number of reasons why a worker may not have a traditional job. For example, a worker may not be able to find full-time work, or he or she may choose alternative employment because of flexible hours, increased income potential, or opportunity to make a transition into a new job or field (Lester 1996; Rothstein 1996).

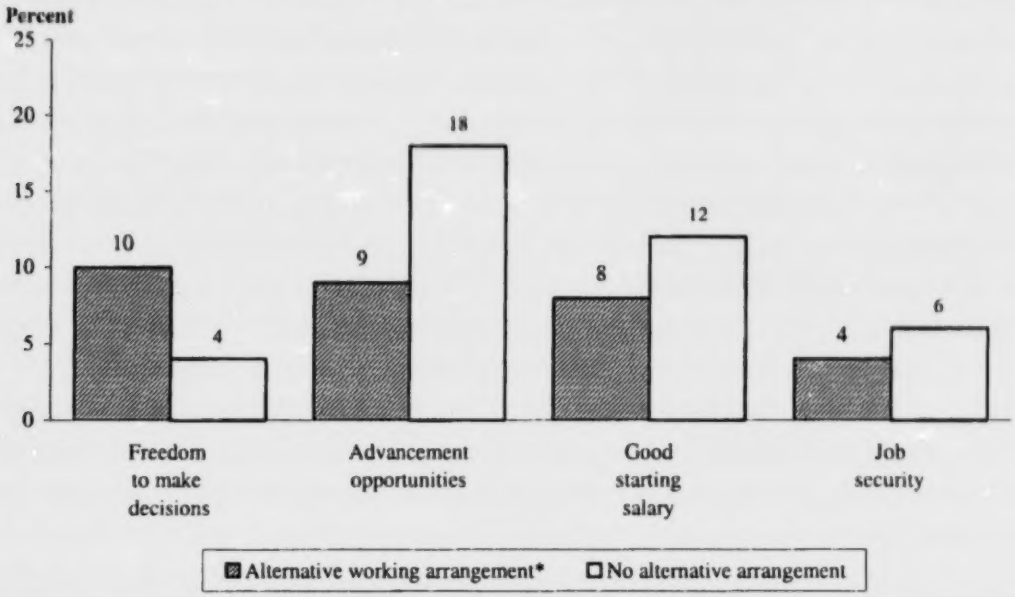
In this section, several aspects of the working conditions of employed 1992–93 college graduates who were not enrolled are assessed, comparing workers in alternative employment to those with traditional jobs. First, workers' reasons for taking their jobs are considered, followed by an examination of job benefits, salary, and job satisfaction.

Reasons for Taking a Job

Those with some type of alternative working arrangement were more likely than others to report having the freedom to make decisions as a reason for taking their job (10 vs. 4 percent; figure 6 and table 14). Specifically, self-employed workers were more likely than those who were not self-employed to cite this reason (21 vs. 4 percent) and were also more likely than others to report income potential as a reason for their choice (17 vs. 10 percent). Part-time workers were more likely than full-time employees to cite convenience and time for activities that were not related to work as reasons for choosing their job (12 vs. 8 percent).

In contrast to the above advantages, those with some type of alternative working arrangement were less likely than others to report that interesting work (15 vs. 19 percent), advancement opportunity (9 vs. 18 percent), good starting salary (8 vs. 12 percent), or good job security (4 vs. 6 percent) were reasons for taking their jobs. In general, the same patterns were observed when comparing self-employed workers with others, those with multiple jobs with

Figure 6.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by alternative working arrangement: 1997



*Includes self-employment, part-time employment, and employment in multiple jobs. These categories are not mutually exclusive.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

those with one job, and part-time workers with full-time workers. Furthermore, while self-employed workers were more likely than others to say their jobs had good income potential, workers with multiple jobs and part-time workers were less likely than their counterparts in traditional jobs to cite this reason.

Some of these reasons also varied according to type of occupation in which a worker was employed. Employees in professional jobs were more likely than those in field professions to report advancement opportunity (18 vs. 8 percent) and good income potential (11 vs. 7 percent) as reasons for taking their jobs. In addition, clerical and support workers were less likely than those in other occupations to say they took the job because of having the freedom to make decisions. However, no differences by occupation type were found in citing interesting work, good starting salary, or job security as reasons for taking a job.

Table 14.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who gave various reasons for taking their jobs, by job characteristics: 1997

	Interesting work	Intellectual work	Advancement opportunities	Good starting salary	Income potential	Job security	Convenience	Freedom to make decisions	Time for non-work activities	Needed job/money
Total	18.5	9.2	16.4	11.5	10.6	5.5	7.8	5.3	2.6	21.1
Alternative working arrangement[1]										
Alternative arrangement	15.4	7.6	9.4	7.5	8.5	3.5	9.0	10.2	2.6	21.9
No alternative arrangement	19.1	9.5	17.7	12.2	11.0	5.9	7.6	4.4	2.6	20.9
Self-employment status										
Self-employed	11.9	10.2	10.8	7.1	16.6	4.2	4.6	21.2	2.5	15.9
Not self-employed	18.9	9.2	16.7	11.7	10.3	5.6	8.0	4.4	2.6	21.3
Employment status										
Full-time	18.5	9.5	17.0	11.8	11.0	5.7	7.6	5.3	2.5	20.9
Part-time	19.2	5.3	7.1	5.5	3.5	1.9	11.9	6.4	5.3	23.6
Number of jobs worked										
Worked more than one job	14.3	7.5	10.0	8.0	5.5	3.5	9.0	5.3	1.0	24.8
Worked one job	18.8	9.3	16.9	11.7	10.9	5.6	7.8	5.3	2.8	20.9
Occupation type										
Clerical and support occupations	16.5	6.9	14.3	9.3	8.6	5.1	10.4	3.1	3.7	31.3
Field professions[2]	19.0	5.3	8.4	9.1	6.9	8.4	8.1	6.6	3.9	24.6
Professional occupations	18.8	10.0	17.6	12.0	11.3	5.2	7.4	5.5	2.3	19.1

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Job Benefits

Employee benefits differed by alternative employment as well (table 15). Part-time workers were less likely than full-time workers to receive any of the benefits examined—health insurance benefits (41 vs. 91 percent), paid sick leave (39 vs. 88 percent), paid vacation (39 vs. 90 percent),

Table 15.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who received various job benefits, by job characteristics and employment status: 1997

	Health insurance benefits	Paid sick leave	Paid vacation	Retirement benefits	Family-related benefits	Job training in last 12 months
			Full-time			
Total	90.6	87.9	90.4	81.8	70.2	46.9
Alternative working arrangement[1]						
Alternative arrangement	72.9	68.9	70.2	59.4	46.7	38.3
No alternative arrangement	92.7	90.1	92.6	84.4	72.9	48.0
Self-employment status						
Self-employed	61.4	54.7	56.4	40.3	33.6	31.8
Not self-employed	92.1	89.6	92.0	83.9	72.0	47.7
Number of jobs worked						
Worked more than one job	80.8	77.9	79.2	73.2	56.3	42.7
Worked one job	91.2	88.6	91.0	82.3	71.0	47.2
Occupation type						
Clerical and support occupations	90.6	87.2	92.4	79.9	73.3	38.6
Field professions[2]	79.0	70.2	81.4	71.1	53.5	36.1
Professional occupations	91.9	89.9	91.0	83.3	71.5	49.3
			Part-time			
Total	40.5	38.6	39.3	43.7	30.8	28.6
Alternative working arrangement[1]						
Alternative arrangement	40.5	38.6	39.3	43.7	30.8	28.6
No alternative arrangement	(†)	(†)	(†)	(†)	(†)	(†)
Self-employment status						
Self-employed	16.7	11.4	12.6	8.8	16.0	12.7
Not self-employed	44.0	42.6	43.0	48.7	33.1	30.9
Number of jobs worked						
Worked more than one job	32.4	36.1	32.9	40.3	19.6	28.2
Worked one job	42.7	39.3	41.0	44.7	33.8	28.7
Occupation type						
Clerical and support occupations	41.0	32.9	38.3	34.5	16.4	19.0
Field professions[2]	35.9	23.5	32.6	26.4	25.4	25.4
Professional occupations	41.5	43.0	41.0	49.5	35.4	31.3

†Not applicable.

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

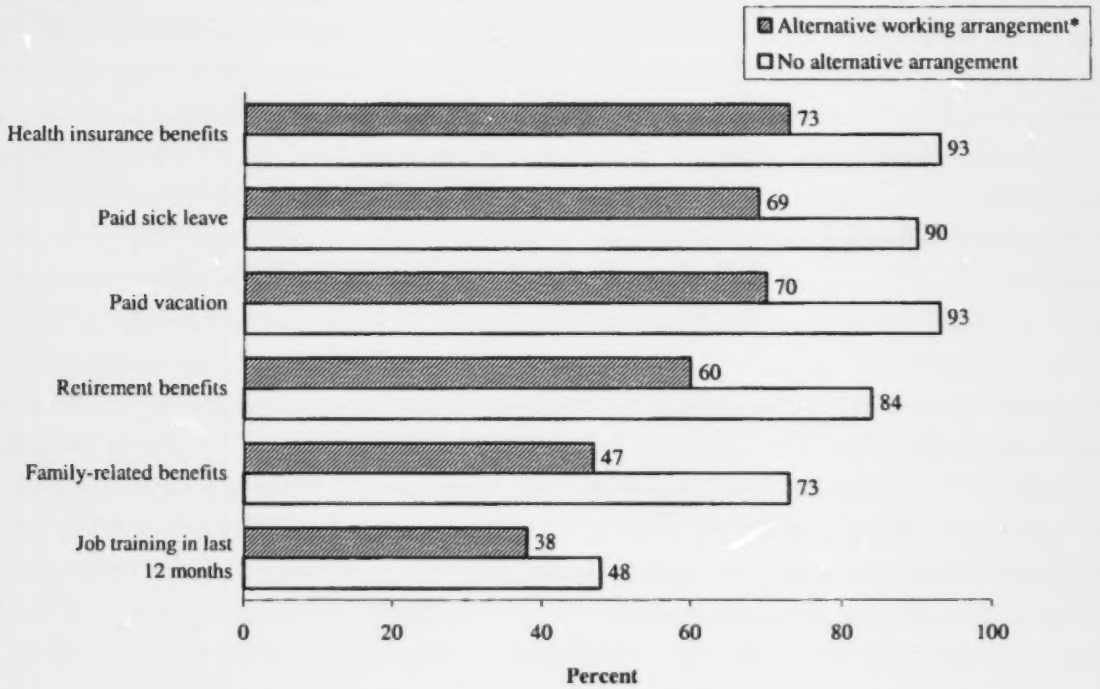
[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

retirement benefits (44 vs. 82 percent), family-related benefits (31 vs. 70 percent), and job training (29 vs. 47 percent). This pattern is consistent with the findings for part-time workers in the labor market in general (Tilly 1991). Because these differences in the benefits of full- and part-time workers are so pervasive, analyses of benefits with regard to other types of alternative employment were conducted separately for the two groups.

Among full-time workers, those with some type of alternative working arrangement were less likely than others to receive each benefit examined (figure 7). For example, 73 percent of full-time workers with alternative working arrangements had health insurance, compared with 93 percent of those in traditional jobs. Those who were self-employed were less likely to have all types of benefits examined than those employed by others, and those with multiple jobs were generally less likely than workers with just one job to receive these benefits as well.[11]

Figure 7.—Percentage of full-time employed 1992–93 bachelor's degree recipients not enrolled who had various job benefits, by alternative working arrangement: 1997



*Includes self-employment and employment in multiple jobs. These categories are not mutually exclusive.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

[11]No difference in the percentage receiving job training in the past 12 months was detected between those working in multiple jobs and those working in only one job.

There were also differences in receipt of benefits by occupation type. Full-time employees in professional positions were more likely than those in field professions to report receiving the benefits examined. Except for job training, full-time employees in clerical jobs were also more likely than those in field occupations to receive these benefits.

Among part-time workers, some similar patterns were present. For example, self-employed workers were less likely to receive the various types of benefits considered. However, unlike the pattern among full-time workers, part-time workers with multiple jobs differed significantly from those with one job only in the extent to which they received family-related benefits (20 vs. 34 percent). Part-time workers in professional jobs were more likely than those in a field profession to receive paid sick leave (43 vs. 23 percent) or retirement benefits (50 vs. 26 percent) and were more likely than clerical workers to receive family-related benefits (35 vs. 16 percent). These findings are consistent with those cited in the literature on this topic (Lester 1996).

Income

In addition to the benefits described above, differences in income—both from all jobs and all sources—were also examined in this analysis separately for full- and part-time workers (table 16). When comparing full-time workers to part-time workers, full-time workers earned higher income both overall and within each type of alternative employment. Among full-time workers, mean income from all sources was higher than that from job income alone ($34,200 vs. $32,700). While it appears that this pattern held for part-time workers as well, the standard errors were large and a statistically significant difference could not be detected.

This study revealed several differences in income by alternative employment status. Full-time self-employed workers had higher income (both from their job and from all sources) than other full-time workers ($39,600 vs. $32,400 for job income, and $42,500 vs. $33,900 for income from all sources). In contrast, full-time workers with multiple jobs had lower income than those with only one job ($29,000 vs. $32,900 for job income, and $30,800 vs. $34,400 for all income). Occupation type was also associated with differences in both job income and all income among full-time workers. Those in professional positions had higher income than others, while those in clerical jobs had lower income than those in other jobs. However, among part-time workers, no differences in income were detected by self-employment, working in multiple jobs, or occupation type.

The relationships between income and some types of alternative employment also differed by gender (table 17). Among both male and female full-time workers, those in professional occupations earned more from their jobs and overall than those in clerical and support or field

Table 16.—Income of employed 1992–93 bachelor's degree recipients not enrolled, by job characteristics and employment status: 1997

	Income from all jobs 1996	Income from all sources 1996
	Full-time	
Total	$32,702	$34,235
Alternative working arrangement[1]		
Alternative arrangement	33,568	35,898
No alternative arrangement	32,617	34,065
Self-employment status		
Self-employed	39,576	42,451
Not self-employed	32,392	33,868
Number of jobs worked		
Worked more than one job	29,018	30,811
Worked one job	32,929	34,445
Occupation type		
Clerical and support occupations	26,478	27,818
Field professions[2]	30,003	31,670
Professional occupations	33,848	35,401
	Part-time	
Total	18,663	21,171
Alternative working arrangement[1]		
Alternative arrangement	18,663	21,171
No alternative arrangement	(†)	(†)
Self-employment status		
Self-employed	21,350	23,553
Not self-employed	18,340	20,891
Number of jobs worked		
Worked more than one job	17,324	18,843
Worked one job	19,017	21,797
Occupation type		
Clerical and support occupations	17,497	21,094
Field professions[2]	17,937	19,786
Professional occupations	19,085	21,479

†Not applicable.

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Table 17.—Income of employed 1992–93 bachelor's degree recipients not enrolled, by job characteristics, employment status, and gender: 1997

	Income from all jobs 1996	Income from all sources 1996
	Full-time male	
Total	$36,709	$38,327
Alternative working arrangement[1]		
Alternative arrangement	38,508	41,773
No alternative arrangement	36,445	37,857
Self-employment status		
Self-employed	43,588	46,895
Not self-employed	36,179	37,672
Number of jobs worked		
Worked more than one job	31,107	33,956
Worked one job	36,978	38,534
Occupation type		
Clerical and support occupations	29,040	30,095
Field professions[2]	31,996	33,758
Professional occupations	38,151	39,807
	Part-time male	
Total	23,789	25,170
Alternative working arrangement[1]		
Alternative arrangement	23,789	25,170
No alternative arrangement	(†)	(†)
Self-employment status		
Self-employed	(†)	(†)
Not self-employed	21,477	23,054
Number of jobs worked		
Worked more than one job	(†)	(†)
Worked one job	25,215	26,921
Occupation type		
Clerical and support occupations	(†)	(†)
Field professions[2]	(†)	(†)
Professional occupations	25,334	25,630

See footnotes at end of table.

Table 17.—Income of employed 1992–93 bachelor's degree recipients not enrolled, by job characteristics, employment status, and gender: 1997—Continued

	Income from all jobs 1996	Income from all sources 1996
	Full-time female	
Total	$29,132	$30,577
Alternative working arrangement[1]		
Alternative arrangement	28,197	29,501
No alternative arrangement	29,259	30,726
Self-employment status		
Self-employed	29,764	31,347
Not self-employed	29,147	30,598
Number of jobs worked		
Worked more than one job	27,783	28,969
Worked one job	29,232	30,696
Occupation type		
Clerical and support occupations	25,196	26,683
Field professions[2]	24,284	25,729
Professional occupations	30,123	31,563
	Part-time female	
Total	17,019	19,862
Alternative working arrangement[1]		
Alternative arrangement	17,019	19,862
No alternative arrangement	(†)	(†)
Self-employment status		
Self-employed	(†)	(†)
Not self-employed	17,405	20,232
Number of jobs worked		
Worked more than one job	17,058	19,012
Worked one job	17,009	20,095
Occupation type		
Clerical and support occupations	15,372	18,258
Field professions[2]	(†)	(†)
Professional occupations	17,510	20,405

†Not applicable.

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

professions. However, while men with alternative working arrangements differed in their job income, these differences were not detected among women. That is, while being self-employed was associated with higher income and working in multiple jobs was associated with lower income among full-time male workers, this pattern was not found for their female counterparts.

In addition, among both full- and part-time workers, men had a higher job income than women ($36,700 vs. $29,100 for full-time employees, and $23,800 vs. $17,000 for part-time workers). Likewise, among full-time workers, men received greater income from all sources than women ($38,300 vs. $30,600). These results are consistent with evidence from other studies exploring the relationship between gender and earnings from various types of work (Kemp 1994). Among those with alternative working arrangements, there were gender differences in income. For example, consistent with the results for all self-employed workers (not just college graduates; Cohany 1998), full-time self-employed men earned more than their female counterparts ($43,600 vs. $29,800). Clearly, a gender gap in earnings persists even among those with various types of employment arrangements.

Job Satisfaction

While those with alternative employment generally had fewer benefits and often had lower incomes, the results reported above also showed that they often gave different reasons for choosing their jobs. Therefore, their satisfaction with their work might depend on which job characteristics are being considered. Because of the differences in benefits and income for full-time and part-time workers, their satisfaction with various aspects of their work—salary, job security, job challenge, fringe benefits, promotion opportunity, relationship with coworkers, and working environment—was also analyzed separately (table 18). Consistent with the differences in benefits, part-time workers were less likely than full-time workers to report being very satisfied with their fringe benefits (36 vs. 56 percent), job security (55 vs. 65 percent), and promotion opportunities (28 vs. 40 percent). However, no differences were detected between full-time and part-time workers' satisfaction with their pay, job challenge, working conditions, and relationships with co-workers. The level of satisfaction part-time workers report may reflect other advantages these jobs offer. For example, flexibility and time for activities other than work may outweigh the benefits of additional income. Alternatively, part-time workers may assess their satisfaction with their pay in terms of the rate of pay for their time, rather than the total income for the year.

Among full-time workers, the patterns of job satisfaction among alternative employees compared with traditional employees depended on the type of alternative employment being considered. Self-employed workers were more likely than those who worked for someone else to

Table 18.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were very satisfied with various aspects of their jobs, by job characteristics and employment status: 1997

	Salary	Job security	Job challenge	Fringe benefits	Promotion opportunity	Relationship with coworkers	Working environment
				Full-time			
Total	33.6	64.7	57.8	55.8	40.1	80.3	56.2
Alternative working arrangement[1]							
Alternative arrangement	35.6	64.9	69.2	51.8	43.2	80.6	62.3
No alternative arrangement	33.3	64.8	56.7	56.1	39.7	80.2	55.5
Self-employment status							
Self-employed	47.6	72.0	80.1	55.6	64.3	81.9	73.8
Not self-employed	32.9	64.5	56.8	55.7	38.9	80.2	55.3
Number of jobs worked							
Worked more than one job	25.6	58.4	61.4	48.6	26.6	79.7	53.4
Worked one job	34.1	65.1	57.6	56.3	40.9	80.3	56.4
Occupation type							
Clerical and support occupations	31.0	61.8	37.5	56.5	31.7	79.6	55.9
Field professions[2]	32.1	65.2	46.1	46.7	34.8	78.3	44.4
Professional occupations	34.1	65.1	62.2	56.7	41.9	80.5	57.3
				Part-time			
Total	35.2	55.3	55.9	36.1	28.5	82.7	59.6
Alternative working arrangement[1]							
Alternative arrangement	35.2	55.3	55.9	36.1	28.5	82.7	59.6
No alternative arrangement	(†)	(†)	(†)	(†)	(†)	(†)	(†)
Self-employment status							
Self-employed	33.6	56.2	74.7	61.6	67.7	79.5	72.2
Not self-employed	35.4	55.0	53.1	32.7	23.6	83.1	57.8

See footnotes at end of table.

Table 18.—Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were very satisfied with various aspects of their jobs, by job characteristics and employment status: 1997 —Continued

	Salary	Job security	Job challenge	Fringe benefits	Promotion opportunity	Relationship with coworkers	Working environment
				Part-time			
Number of jobs worked							
Worked more than one job	30.6	45.5	51.2	22.4	25.7	82.0	57.4
Worked one job	36.5	57.9	57.2	39.8	29.3	82.9	60.2
Occupation type							
Clerical and support occupations	38.1	79.2	51.7	45.3	26.0	91.1	61.5
Field professions[2]	21.7	46.6	31.3	42.0	20.2	79.5	56.2
Professional occupations	37.0	51.1	61.7	32.7	30.7	81.4	59.7

†Not applicable.

[1]Includes self-employment, part-time employment, and employment in multiple jobs.

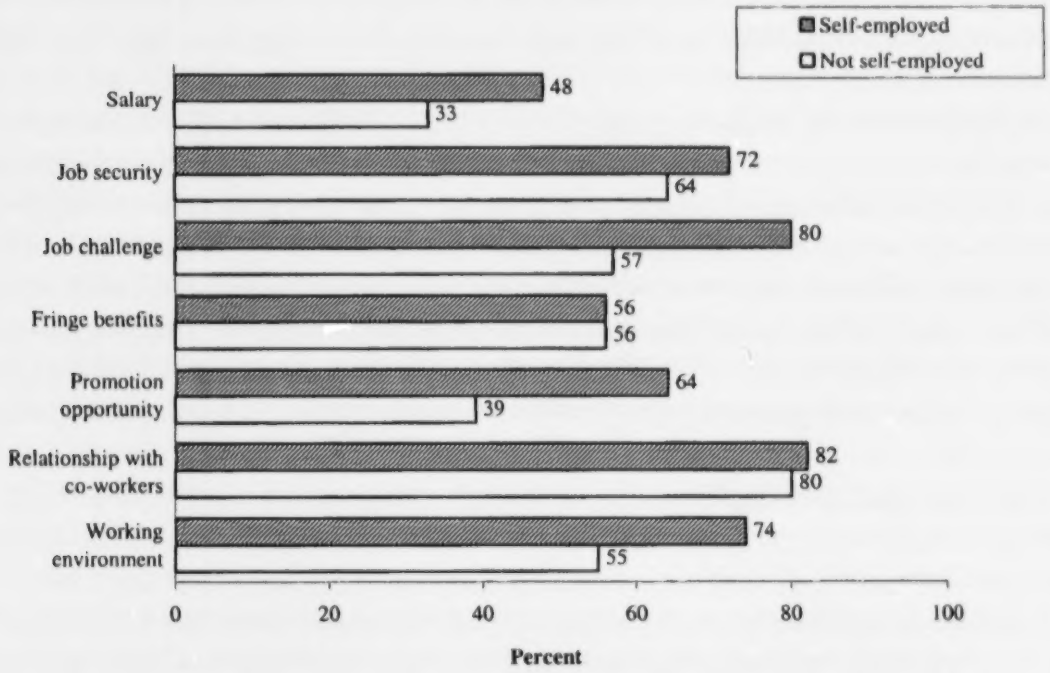
[2]These include such fields as farming and forestry, protective services, and health and recreational services. See the glossary for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

report being very satisfied with the challenge of their jobs, their working conditions, their pay, their promotion opportunities, and their job security (figure 8). Because these individuals were self-employed, many of these characteristics were directly under their control, which is consistent with the finding that self-employed workers were more likely than others to cite having the freedom to make decisions as a reason for taking their job. In contrast, consistent with the differences in their employment conditions described above, workers with multiple jobs were less satisfied than those with only one job with their fringe benefits, pay, promotion opportunities, and job security.

Satisfaction with various aspects of work was also related to occupation type. Full-time workers in professional jobs were more likely than others to indicate that they were very satisfied with the challenge of their jobs and their promotion opportunities. Consistent with the fewer benefits they received, workers in field professions were less likely than professionals or clerical workers to be very satisfied with their benefits (47 vs. 57 percent each). In addition, these workers were less likely than others to say they were very satisfied with their working conditions (44 vs. 56–57 percent).

Figure 8.—Percentage of full-time employed 1992–93 bachelor's degree recipients not enrolled who were very satisfied with various aspects of their employment, by self-employment status: 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Some of these relationships were also detected among part-time employees. Those who were self-employed were more likely to be very satisfied with the challenge of their work, their promotion opportunities, their working conditions, and their fringe benefits. Among part-time workers, those with multiple jobs were less likely to report being very satisfied with their fringe benefits or their level of job security. Professional workers were more likely than those with a field profession to be very satisfied with their pay and their job challenges. However, those in clerical and support occupations were more likely than both professionals and field professionals to report being very satisfied with their job security (79 vs. 51 and 47 percent, respectively).

Conclusion

Today's labor market does not necessarily guarantee a college graduate a traditional 9 to 5 professional job, nor is this type of employment the preference of all bachelor's degree recipients. Instead, some graduates are voluntarily or involuntarily taking alternative employment. Overall, 68 percent of 1992–93 bachelor's degree recipients who were employed but not enrolled in postbaccalaureate education worked in jobs considered traditional for college graduates—that is, they worked full time for someone else in one professional job. However, 15 percent reported having at least one of three types of alternative working arrangements in 1997: 5 percent were self-employed, 5 percent were employed part time, and 7 percent worked in multiple jobs. Also, 13 percent were employed in clerical and support occupations, and an additional 8 percent worked in field professions. These employment patterns differ somewhat from those that graduates encountered in their first year after college. For example, they were more likely to have multiple jobs or to be self-employed in 1997 than in 1994. On the other hand, they were less likely to work part time in 1997 than in 1994.

Among the 1992–93 bachelor's degree recipients, gender was associated with various types of alternative employment experiences. Women were more likely than men to work part time, have multiple jobs, and be in a clerical position, while men were more likely than women to be self-employed or work in a field profession. Most of these differences were detected in both 1994 and 1997. Within gender groups, demographic and family characteristics were related to many types of alternative working arrangements among women, but few among men. Marital status was related to working part time for both men and women, but in different ways: married women were more likely than single women to work part time, while married men were less likely than their single counterparts to do so.

The results of the multivariate analysis show that gender was related to most types of alternative employment after taking other variables into account, with the exception of working in multiple jobs. Also, in the regression models, undergraduate major was related to all types of alternative employment except for working in multiple jobs. There were also some associations among various types of alternative employment. In particular, employment status was related to self-employment, working in multiple jobs, and field professions both before and after the adjustment procedure.

Workers have a range of reasons for voluntarily or involuntarily working in alternative employment, balancing the disadvantages and benefits associated with a particular job. For instance, part-time workers cited convenience and time for activities that were not related to work as reasons for choosing their jobs. Those who were self-employed were more likely to report income potential and having the freedom to make their own decisions as reasons for taking their jobs. However, those reporting some type of alternative working arrangement were less likely to report interesting work, advancement opportunity, good starting salary, or good job security as reasons for taking their jobs. In addition, workers with several types of alternative employment were less likely to report receiving benefits, for all benefits examined, and they often reported lower salaries.

Among the 1992–93 bachelor's degree recipients who worked full time, those who were self-employed earned more than their counterparts, while those with multiple jobs earned less than those with only one job. Those with professional occupations earned more than those in clerical or field professions. However, no income differences were detected among part-time workers according to self-employment or multiple job status. Gender differences were also observed in the relationship between income and various types of alternative employment. For example, while being self-employed was associated with higher income and working in multiple jobs was associated with lower income among full-time male workers, these results were not detected among their female counterparts.

References

Bureau of Labor Statistics. (2001). *Report on Contingent and Alternative Employment Arrangements, February 2001.* Washington, DC: U.S. Department of Labor. Available: http://www.bls.gov/news.release/conemp.toc.htm [September 20, 2002].

Bureau of Labor Statistics (2002). *Employed and Unemployed Full- and Part-Time Workers by Age, Sex, and Race.* Current Population Survey Data Annual Averages Tabulations. Washington, DC: U.S. Department of Labor. Available: http://stats.bls.gov/cps/cpsaat8.pdf [September 20, 2002].

Callaghan, P., and Hartmann, H. (1991). *Contingent Work: A Chart Book on Part-Time and Temporary Employment.* Washington, DC: Economic Policy Institute.

Cappelli, P., Bassi, L., Katz, H., Knoke, D., Osterman, P., and Useem, M. (1997). *Change at Work.* New York: Oxford University Press.

Clune, M.S., Nuñez, A., and Choy, S.P. (2001). *Competing Choices: Men's and Women's Paths After Earning a Bachelor's Degree* (NCES 2001–154). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Cohany, S.R. (1998). Workers in Alternative Employment Arrangements: A Second Look. *Monthly Labor Review,* 121: 3–21.

Decker, P.T., Rice, J.K., and Moore, M.T. (1997). *Education and the Economy: An Indicators Report* (NCES 97–269). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Dennis, W.J. (1996). Self-Employment: When Nothing Else is Available? *Journal of Labor Research, 17*(4): 645–661.

Grogger, J., and Eide, E. (1995). Changes in College Skills and the Rise of the College Wage Premium. *Journal of Human Resources, 30*: 280–310.

Hipple, S. (1998). Contingent Work: Results From the Second Survey. *Monthly Labor Review, 121*: 22–34.

Horn, L., and Zahn, L. (2001). *From Bachelor's Degree to Work: Major Field of Study and Employment Outcomes of 1992–93 Bachelor's Degree Recipients Who Did Not Enroll in Graduate School by 1997* (NCES 2001–165). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Jacobs, J.A. (1989). *Revolving Doors: Sex Segregation and Women's Careers*. Stanford, CA: Stanford University Press.

Kalleberg, A.L., Reskin, B.F., and Hudson, K. (2000). "Bad" Jobs in America: Standard and Nonstandard Employment Relations and Job Quality in the United States. *American Sociological Review, 65*: 256–278.

Kemp, A.A. (1994). *Women's Work: Degraded and Devalued.* Englewood Cliffs, NJ: Prentice-Hall.

Lester, B.Y. (1996). Part-Time Employment of Married Women in the U.S.A. *American Journal of Economics and Sociology, 55*(1): 61–72.

Mangan, J. (2000). *Workers Without Traditional Employment: An International Study of Non-standard Work.* Northampton, MA: Edward Elgar.

Pascarella, E.T., and Terenzini, P.T. (1991). *How College Affects Students*. San Francisco: Jossey-Bass.

Polivka, A.E. (1996a). Into Contingent and Alternative Employment: By Choice. *Monthly Labor Review, 119*: 55–75.

Polivka, A.E. (1996b). A Profile of Contingent Workers. *Monthly Labor Review, 119*: 10–21.

Reskin, B.F., and Padavic, I. (1994). *Women and Men at Work.* Thousand Oaks, CA: Pine Forge Press.

Rothstein, D.S. (1996). Entry Into and Consequences of Nonstandard Work Arrangements. *Monthly Labor Review, 119*: 76–83.

Rumberger, R., and Thomas, S. (1993). The Economics Returns to College Major, Quality, and Performance: A Multilevel Analysis of Recent Graduates. *Economics of Education Review, 12*: 1–19.

Tilly, C. (1991). Reasons for the Continuing Growth of Part-time Employment. *Monthly Labor Review, 114*: 10–18.

Appendix A—Glossary

This glossary describes the variables used in this report. The items were taken directly from the NCES B&B: 93/97 Data Analysis Systems (DAS), an NCES software application that generates tables from the B&B:93/97 data (see appendix B for a description of the DAS). The variables listed in the index below are organized by sections in the order they appear in the report; the glossary is in alphabetical order by variable name (displayed along the right-hand column). Some items were reported by the student only during the Computer-Assisted Telephone Interview (CATI). Variables based only on CATI respondents are identified.

Glossary Index

ALTERNATIVE EMPLOYMENT, 1997

Alternative working arrangement in April 1997 ..... B2ALTEMP
Self-employment status (1997) B2SLFEMP
Employment status (1997) B2FPJOB
Number of jobs worked (1997) B2MJOB
Occupation type (1997) B2AJOBR

DEMOGRAPHIC AND FAMILY CHARACTERISTICS

Gender B2RSEX
Race/ethnicity B2ETHNIC
Age when received bachelor's degree B2AGATBA
Family income and dependency status ..... DEPEND, PCTDEP
Parents' highest education ..... PEDUC
Does respondent have a disability ..... DISABLED
Marital status B2MAR497
Any dependents B2NDEP
Single-parent status ..... SINGLEPAR

INSTITUTIONAL AND ACADEMIC CHARACTERISTICS

Type of institution where received degree ..... SECTOR_B
Whether attended multiple institutions ..... NUMOTHSC
Institutional graduation rate ..... GRADRATE
Time to degree completion B2BATIM2
Undergraduate major ..... BAMAJOR
Cumulative grade-point average ..... GPACUM
Additional educational attainment B2HDGPRG

ALTERNATIVE EMPLOYMENT, 1994

Alternative working arrangement (1994) B1ALTEMP
Self-employment status (1994) ..... AJOBSECT
Employment status (1994) ..... AJOBHRS
Number of jobs worked (1994) B1MJOB
Occupation type (1994) ..... AJOBOCCR
1994 employment and enrollment status B2NM9404
1997 employment and enrollment status B2NM9704

OTHER JOB CHARACTERISTICS

Interesting work B2AJRE10
Intellectual work B2AJRE11
Advancement opportunity B2AJRE08
Good starting salary B2AJRE05
Income potential B2AJRE06
Job security B2AJRE07
Convenience B2AJRE15
Freedom to make decisions B2AJRE12
Time for non-work activities B2AJRE19
Needed job/money B2AJRE02
Health insurance benefits B2AJBN01
Paid sick leave B2AJBN04
Paid vacation B2AJBN03
Retirement benefits B2AJBN02
Family-related benefits B2AJBN06
Job training in last 12 months B2EMPTRN
Satisfaction with salary B2AJST01
Satisfaction with job security B2AJST06
Satisfaction with job challenge B2AJST03
Satisfaction with fringe benefits B2AJST02
Satisfaction with promotion opportunity B2AJST05
Satisfaction with relationship with co-workers B2AJST08
Satisfaction with working environment B2AJST04
Income from all jobs 1996 ..... B2ANNINC
Income from all sources 1996 ..... B2TOTINC

OTHER

Panel weight for NPSAS and B&B ..... BNBPANEL

DAS Variable

Employment status (1994) **AJOBHRS**

This variable is based on the response to the question, "How many hours a week (do/did) you work at your April job employer?" Responses were grouped to create part-time and full-time employment categories.

Full-time	Worked 30 or more hours per week
Part-time	Worked fewer than 30 hours per week

Occupation type (1994) **AJOBOCCR**

Revised April 1994 occupation variable. Categories were grouped to create professional, clerical and support, and field professions, as follows:

Clerical and support	Secretaries, specialized secretaries, receptionists; Cashiers, tellers, sales clerks; Clerks–data entry; Clerical–other; Business/financial support services; Customer service; Legal support; Medical services.
Field professions	Farmers, foresters, farm/forest laborers; Personal services; Cooks, chefs, bakers, cake decorators; Laborer (other than farm); Mechanics, repairers, service techs; Craftsmen; Skilled operative; Transport operatives (other than pilots); Protective services, criminal justice administrative; Military; Computer and computer equipment operators; Health/recreation services; Other.
Professional	Medical practice professionals; Medical licensed professionals; Educators–K-12 teachers; Educators–instructors other than K-12; Human services professionals; Engineers, architects, software engineers; Scientists, statistician professionals; Financial services professionals; Sales/purchasing; Legal professionals; Research asst/lab technicians; Technical/professional workers–other; Computer systems/related professional/tech workers; Computer programmers; Editors, writers, reporters, public relations; Performers/artists; Managers–executive; Managers–midlevel; Managers–supervisory, office, other.

Self-employment status (1994) **AJOBSECT**

Based on a question about employer type with the following options: A for-profit firm, private individual; A non-profit organization; A branch of the Federal government; Part of the State government; A local government unit; Self-employed. For the purposes of this report, the responses were categorized as self-employed and all other groups.

Self-employed
Not self-employed

DAS Variable

Alternative working arrangement (1994) **B1ALTEMP**

This variable indicates whether the respondent had some type of alternative working arrangement in April 1994 (part-time employment, employed in multiple jobs, or self-employed). It applies only to first follow-up CATI respondents who were employed and not enrolled in April 1994. It was constructed based on responses to AJOBSECT, AJOBHRS, and B1MJOB.

Alternative working arrangement
No alternative arrangement

Number of jobs worked (1994) **B1MJOB**

This variable indicates whether the respondent was employed in multiple jobs in April 1994. It was derived from the job histories provided in the first follow-up CATI based on the start and end dates of jobs. Those who had more than one job that started before April 1994 and ended after April 1994 were coded as having multiple jobs in April 1994.

Worked more than one job
Worked one job

Age when received bachelor's degree **B2AGATBA**

Identifies the respondent's age when they received their bachelor's degree at the school at which they were sampled.

22 or younger
23 to 24
25 to 29
30 and older

Health insurance benefits **B2AJBN01**

Based on respondent's answer to the question, "(Does/Did) your job at your April job employer provide health or dental insurance?" pertaining to the April 1997 job. This analysis looks at the percentage who responded "yes."

Retirement benefits **B2AJBN02**

Based on respondent's answer to the question, "(Does/Did) your job at your April job employer provide retirement benefits?" pertaining to the April 1997 job. This analysis looks at the percentage who responded "yes."

Paid vacation **B2AJBN03**

Based on respondent's answer to the question, "(Does/Did) your job at your April job employer provide paid vacation or holidays?" pertaining to the April 1997 job. This analysis looks at the percentage who responded "yes."

DAS Variable

Paid sick leave **B2AJBN04**

Based on respondent's answer to the question, "(Does/Did) your job at your April job employer provide paid sick leave?" pertaining to the April 1997 job. This analysis looks at the percentage who responded "yes."

Family-related benefits **B2AJBN06**

Based on respondent's answer to the question, "(Does/Did) your job at your April job employer provide family related benefits such as maternity leave, child care or elder care?" pertaining to the April 1997 job. This analysis looks at the percentage who responded "yes."

Occupation type (1997) **B2AJOBR**

1997 occupation variable based on the following questions: "What is your occupation?", "And what type of business or industry was/is that?", and "What was the name of your main employer?" Verbatim responses to these questions were used to create standardized categories. For this report, the standardized categories were collapsed as follows:

Clerical and support	Secretaries, specialized secretaries, receptionists; Cashiers, tellers, sales clerks; Clerks–data entry; Clerical–other; Business/financial support services; Customer service; Legal support; Medical services.
Field professions	Farmers, foresters, farm/forest laborers; Personal services; Cooks, chefs, bakers, cake decorators; Laborer (other than farm); Mechanics, repairers, service techs; Craftsmen; Skilled operative; Transport operatives (other than pilots); Protective services, criminal justice administrative; Military; Computer and computer equipment operators; Health/recreation services; Other.
Professional	Medical practice professionals; Medical licensed professionals; Educators–K-12 teachers; Educators–instructors other than K-12; Human services professionals; Engineers, architects, software engineers; Scientists, statistician professionals; Financial services professionals; Sales/purchasing; Legal professionals; Research asst/lab technicians; Technical/professional workers–other; Computer systems/related professional/tech workers; Computer programmers; Editors, writers, reporters, public relations; Performers/artists; Managers–executive; Managers–midlevel; Managers–supervisory, office, other.

Needed job/money **B2AJRE02**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Needed a job or money."

BEST COPY AVAILABLE

DAS Variable

Good starting salary **B2AJRE05**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Good income to start."

Income potential **B2AJRE06**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Good income potential over career."

Job security **B2AJRE07**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Good job security."

Advancement opportunity **B2AJRE08**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Better opportunity for advancement."

Interesting work **B2AJRE10**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "It was interesting work."

Intellectual work **B2AJRE11**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "It was intellectually challenging work."

Freedom to make decisions **B2AJRE12**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Freedom to make own decisions at work."

DAS Variable

Convenience **B2AJRE15**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Convenience."

Time for non-work activities **B2AJRE19**

Derived from respondent's answer to the question "Why did you accept this position with your April job employer?" for the April 1997 job. Respondents could indicate more than one response. This analysis looks at the percentage who selected the response, "Time for non-work activity."

Satisfaction with salary **B2AJST01**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the pay of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Satisfaction with fringe benefits **B2AJST02**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the fringe benefits of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Satisfaction with job challenge **B2AJST03**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the job challenge of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Satisfaction with working environment **B2AJST04**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the working conditions of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Satisfaction with promotion opportunity **B2AJST05**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the promotion opportunities of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

DAS Variable

Satisfaction with job security **B2AJST06**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with the job security of your employment at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Satisfaction with relationship with co-workers **B2AJST08**

Respondents were asked, "(Are/Were) you very satisfied, somewhat satisfied, or dissatisfied with your relationship with co-workers at your April job employer?" and given response options of Dissatisfied, Somewhat satisfied, and Very satisfied. This analysis looks at the percentage who said they were "Very satisfied."

Alternative working arrangement in April 1997 **B2ALTEMP**

This variable indicates whether the respondent had some type of alternative working arrangement in April 1997 (part-time employment, employed in multiple jobs, or self-employed).

Applies to: Second follow-up CATI respondents who were employed and not enrolled in April 1997.

Alternative working arrangement
No alternative arrangement

Income from all jobs 1996 **B2ANNINC**

This variable is the respondent's answer to the question, "What was your personal income from all jobs in 1996? (Exclude untaxed income or income from other sources such as interest, dividends, and capital gains.)"

Time to degree completion **B2BATIM2**

This composite variable calculates the number of months between the date the respondent first entered college and the date they received their bachelor's degree. Responses in months were combined to the following categories:

4 years or less
More than 4 and up to 5 years
More than 5 and up to 6 years
More than 6 years

Job training in last 12 months **B2EMPTRN**

Based on respondent's answer to the question, "In the last twelve months, did your April job employer provide any training other than informal on-the-job training or tuition reimbursed courses taken through a regular college?" This analysis looks at the percentage who said "yes."

DAS Variable

Race/ethnicity **B2ETHNIC**

This variable categorizes respondent's racial/ethnic group based on their selection of Hispanic or non-Hispanic ethnicity and race categories. Responses to separate questions about race and ethnicity were combined to create the following categories (with the OMB definition of the category provided):

American Indian/Alaska Native	A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.
Asian or Pacific Islander	A person having origins in any of the peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, India, Vietnam, Hawaii, and Samoa.
Black, non-Hispanic	A person having origins in any of the black racial groups of Africa.
Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
White, non-Hispanic	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.
Other	A person reporting having origins in a race not listed above.

Employment status (1997) **B2FPJOB**

Full-time/part-time status of main job held in April 1997. Full-time is defined as 30 or more hours per week, except for those who were teaching in April 1997, in which case full-time was defined by the respondent.

Full-time
Part-time

Additional educational attainment **B2HDGPRG**

This composite identifies degree type for the highest degree a student received after completing the bachelor's degree from the school at which he or she was sampled.

No postbaccalaureate degree/enrollment	No postbaccalaureate degree/enrollment
Less than master's	Associate degree; Bachelor's degree; Postbaccalaureate certificate; Certificate or license; Non-degree program
Master's or above	Master's degree; MBA; Post-master's certificate; First-professional; Doctoral degree

DAS Variable

Marital status **B2MAR497**

This variable was created for B&B93/97 respondents using the marital status questions to determine the respondent's marital status in April 1997.

Married	Married; Living in a marriage-like relationship
Never married/divorced/widowed	Single, never been married; Separated; Divorced; Widowed

Number of jobs worked (1997) **B2MJOB**

This variable indicates whether the respondent was employed in multiple jobs in April 1997. It was derived from the job histories provided in the second follow-up CATI based on the start and end dates of jobs. Those who had more than one job that started before April 1997 and ended after April 1997 were coded as having multiple jobs in April 1997.

Worked more than one job
Worked one job

Any dependents **B2NDEP**

This variable indicates the number of dependents the respondent had. For this analysis, positive values for this variable indicated respondents who had any dependents.

Had dependents
Did not have dependents

1994 employment and enrollment status **B2NM9404**

This variable was derived based on monthly employment and enrollment information collected during the CATI interview. Employment and enrollment status for April 1994 was grouped as follows:

Employed, not enrolled	Not enrolled but employed
Employed and enrolled	Full-time enrolled and employed; Part-time enrolled and employed
Not employed, enrolled	Full-time enrolled and not employed; Part-time enrolled and not employed
Neither employed nor enrolled	Neither enrolled nor employed.

DAS Variable

1997 employment and enrollment status **B2NM9704**

This variable was derived based on monthly employment and enrollment information collected during the CATI interview. Employment and enrollment status for April 1994 was grouped as follows:

Employed, not enrolled	Not enrolled but employed
Employed and enrolled	Full-time enrolled and employed; Part-time enrolled and employed
Not employed, enrolled	Full-time enrolled and not employed; Part-time enrolled and not employed
Neither employed nor enrolled	Neither enrolled nor employed.

Gender **B2RSEX**

Respondent gender was asked only if missing from B&B93/94 and not obvious.

Male
Female

Self-employment status (1997) **B2SLFEMP**

This variable indicates whether the respondent was self-employed in the April 1997 job. The survey question asked "Were you owner or co-owner of this business?" This question was asked only of those who indicated that their job type was private for-profit; "Not self-employed" was imputed for others.

Self-employed
Not self-employed

Income from all sources 1996 **B2TOTINC**

This variable is the respondent's answer to the question, "What was your personal income from all sources in 1996?"

Undergraduate major **BAMAJOR**

Identifies student's undergraduate major field of study.

Humanities	English, liberal arts, philosophy, theology, art, music, speech/drama, history/fine arts, area studies, African-American studies, ethnic studies, foreign languages, liberal studies, women's studies.
Social/behavioral sciences	Psychology, economics, political science, American civilization, clinical pastoral care, social work, anthropology/archaeology, history, sociology.

	DAS Variable
Life sciences	Natural resources, forestry, biological science (including zoology), biophysics, geography, interdisciplinary studies, including biopsychology environmental studies.
Physical sciences	Physical sciences including chemistry, physics.
Math	Mathematics, statistics.
Computer/information science	Computer/information science, computer programming.
Engineering	Electrical, chemical, mechanical, civil, or other engineering; engineering technology; electronics.
Education	Early childhood, elementary, secondary, special, or physical education; leisure studies; library/archival sciences.
Business management	Accounting, finance, secretarial, data processing, business/management, public administration, marketing/distribution, business support, intern relations.
Health	Nursing, nurse assisting, community/mental health, medicine, physical education/recreation, audiology, clinical health, dentistry, veterinary medicine, health/hospital, public dietetics, other/general health.
Vocational/technical	Mechanic technology including transportation, protective services, con air/other transportation, precision production.
Other professional or technical	Agriculture, agricultural science, architecture, professional city planning, journalism, communications, communications technology, cosmetology, military science, dental/medical technology, home economics, vocational home economics including child care, law, basic/personal skills.

Panel weight for NPSAS and B&B **BNBPANEL**

Panel weight for NPSAS, B&B93/94, and B&B93/97 response. This weight was used for all analyses in this report.

Family income and dependency status **DEPEND**

This is one of two variables used to display information in this report for family income and dependency status. This variable is used to create separate estimates for dependent and independent students. Students were considered independent if 1) the institution reported that they were independent, or 2) they met one of the following seven criteria: a) Twenty-four or older as of 12/31/92; b) Student was a veteran; c) Student was an orphan or ward of the court; d) Student had legal dependents, other than spouse; e) Student was married, and not claimed by parents on 1992 tax returns; f) Student was a graduate student and not claimed as a dependent by parents on 1992 tax returns; g) Student was a single undergraduate, not claimed as a dependent by parents on either 1990 or 1991 tax returns, and was self sufficient for 2 years prior to receiving any federal aid.

Dependent
Independent

DAS Variable

Does respondent have a disability **DISABLED**

Identifies respondents who have a hearing, speech, orthopedic, vision, learning, or other disability.

Had a disability
Did not have a disability

Cumulative grade-point average **GPACUM**

Student-reported grade-point average. If students indicated a grading scale other than a 4-point scale, grades were converted to a 4-point scale. The following categories were used in this report:

Under 2.5
2.5 to 2.99
3.0 to 3.49
3.5 and above

Institutional graduation rate **GRADRATE**

Cohort graduation rate for 150 percent of expected time to degree (6 years for bachelor's degrees) reported by institutions in the 2000 or 1997 IPEDS. If the 2000 graduation rate was missing, the 1997 rate was substituted. The following categories were used in this report:

33 percent or below
34 to 67 percent
68 percent or above

Whether attended multiple institutions **NUMOTHSC**

This variable is constructed based on the respondent's answer to the question, "How many other undergraduate schools did you attend?" This variable refers only to schools attended prior to completing the bachelor's degree at the sample school.

Attended multiple undergraduate institutions
Attended one undergraduate institution

Family income and dependency status **PCTDEP**

This is one of two variables used to display information in this report for family income and dependency status. This variable shows the percentile rank of parents' total income (for 1991, the last year before students' graduation) for dependent students only, and is used to show income quartiles for dependent students. Equal to the proportion of the sample of dependent students' parents who had an income lower than sample students' parents.

Parents' highest education **PEDUC**

Variable recodes highest level of education completed by either parent.

High school or less	Not high school graduate or equivalent; High school graduate or equivalent

	DAS Variable
Some college	Some postsecondary education, less than 2 years; 2 years or more postsecondary education, Attained AA
Bachelor's degree	Bachelor's degree
Advanced degree	Advanced degree

Type of institution where received degree **SECTOR_B**

Institution type by level and control of the institution (from which the respondent was sampled) at which the student received his or her bachelor's degree. Institution level concerns the institution's highest offering (length of program and type of certificate, degree or award), and control concerns the source of revenue and control of operations. The following categories were used in this report:

Public doctorate granting	Public, PhD granting
Public 4-year non-doctorate granting	Public, non-PhD granting
Private not-for-profit doctorate granting	Private, not-for-profit, 4-year, PhD granting
Private not-for-profit 4-year non-doctorate granting	Private, not-for-profit, 4-year, non-PhD granting
Other	Public, less-than-2-year; Public, 2-year; Private, not-for-profit, less-than-4-year; Private, for-profit, less-than-2-year; Private, for-profit, 2-years-or-more.

Single-parent status **SINGLPAR**

Identifies students who were single parents. Students were considered to be single parents if they had dependents and were not married.

Single parent
Not a single parent

Appendix B—Technical Notes

The Baccalaureate and Beyond Longitudinal Study (B&B:93/97)[12]

The data analyzed in this report came from the First and Second Follow-ups of the Baccalaureate and Beyond Longitudinal Study (B&B:93/94 and B&B:93/97), a study that tracks the experiences of a cohort of college graduates who received baccalaureate degrees during the 1992–93 academic year and were first interviewed as part of the National Postsecondary Student Aid Study (NPSAS:93). This group's experiences in the areas of academic enrollments, degree completions, employment, public service, and other decisions have been followed through 1997. The data derived from this survey provide critical information about college graduates' postsecondary education outcomes, including graduate and professional program access, labor market experience, and rates of return on investment in education.

The B&B:93/94 survey was the first follow-up interview of NPSAS:93 participants who received their bachelor's degrees between July 1992 and June 1993. Of 12,500 NPSAS:93 respondents who were identified as potentially eligible for the first follow-up survey, about 1,500 were determined to be ineligible. A total of about 10,000 eligible individuals completed the 1994 interview.

The B&B:93/97 survey is the second follow-up interview of the B&B cohort. The first follow-up interview (B&B:93/94) collected information from respondents 1 year after they received the bachelor's degree; the second follow-up (B&B:93/97) collected data 4 years after they received the bachelor's degree. Data collection for B&B:93/97 took place between April and December 1997. A total of over 11,000 individuals in the B&B cohort were determined eligible for follow-up in 1997. For the second follow-up, over 10,000 individuals completed the interview, yielding a response rate of 90 percent. A total of about 9,300 individuals (83 percent of the sample) responded to all three rounds of the B&B study. Referred to as "the B&B panel sample," these respondents became the base sample of the analyses presented in this report.

The NPSAS:93 sample, while representative and statistically accurate, was not a simple random sample. Instead, the survey sample was selected using a more complex three-step

[12]The text in this section is based on excerpts from the *Baccalaureate and Beyond Longitudinal Study: 1993/97 Methodology Report*, (CES 1999–159) (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1999).

procedure with stratified samples and differential probabilities of selection at each level. Postsecondary institutions were initially selected within geographic strata. Once institutions were organized by zip code and state, they were further stratified by control (i.e., public; private, not-for-profit; or private, for-profit) and degree offering (less-than-2-year, 2- to 3-year, 4-year nondoctorate-granting, and 4-year doctorate-granting).[13]

For more information about the NPSAS:93 survey, refer to the *Methodology Report for the National Postsecondary Student Aid Study, 1992–93* (NCES 95–211, Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1995). For more information on procedures for the Baccalaureate and Beyond follow-ups, consult the Baccalaureate and Beyond Longitudinal Study Methodology Reports (NCES 96–149 for the first follow-up and NCES 1999–159 for the second follow-up).

Sample weights. B&B:93/97 final weights were calculated by making a nonresponse adjustment to the baseline B&B weight calculated for B&B:93/94. This baseline B&B weight is an adjustment of the baseline NPSAS:93 weight. All analyses in this report are weighted to compensate for unequal probability of selection into the B&B sample and to adjust for nonresponse. The B&B panel weight, based on respondents who participated in all three surveys, is used in the report. A complete description of the weighting methodology is available in the methodology reports cited above.

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of populations rather than entire populations. Nonsampling errors occur not only in sample surveys but also in complete censuses of entire populations. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all sample members (e.g., some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

[13]The NPSAS universe excludes institutions offering only correspondence courses, institutions enrolling only their own employees, and U.S. service academies. For this B&B cohort, institutions were further stratified by the number of degrees in education they had awarded in the past.

Data Analysis System

The estimates presented in this report were produced using the B&B:93/97 Data Analysis System (DAS). The DAS software makes it possible for users to specify and generate their own tables from the B&B:93/97 data. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[14] and weighted sample sizes for these estimates. For example, table B1 contains standard errors that correspond to table 2 of this report, and was generated by the DAS. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), the DAS prints the message "low-N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the B&B:93/97 stratified sampling method.

The DAS can be accessed electronically at http://nces.ed.gov/DAS. For more information about the B&B:93/97 Data Analysis System, contact:

Aurora D'Amico
Postsecondary Studies Division
National Center for Education Statistics
1990 K Street NW
Washington, DC 20006-5652
(202) 502-7334
aurora.d'amico@ed.gov

[14]The B&B:93/97 sample is not a simple random sample, and therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

Table B1.—Standard errors for table 2: Percentage of employed 1992–93 bachelor's degree recipients not enrolled who were in alternative employment, by family status and gender: 1997

	Alternative working arrangement					
	Any	Self-employed	Employed part time	Working in multiple jobs	Clerical and support occupations	Field professions
			Male			
Total	0.73	0.57	0.30	0.51	0.65	0.76
Marital status						
Married	1.11	0.90	0.31	0.68	0.87	1.00
Never married, divorced, or widowed	1.01	0.76	0.54	0.65	0.96	1.03
Any dependents						
Had dependents	1.74	1.17	0.61	1.23	1.38	1.66
Did not have dependents	0.78	0.63	0.36	0.56	0.72	0.87
Single-parent status						
Single parent	6.65	3.86	5.27	3.01	1.78	5.56
Not a single parent	0.74	0.57	0.29	0.51	0.66	0.77
			Female			
Total	0.62	0.35	0.52	0.45	0.92	0.40
Marital status						
Married	1.13	0.50	0.90	0.58	1.07	0.49
Never married, divorced, or widowed	0.99	0.49	0.59	0.78	1.39	0.62
Any dependents						
Had dependents	1.71	0.77	1.52	0.94	1.36	0.68
Did not have dependents	0.65	0.38	0.44	0.53	1.07	0.50
Single-parent status						
Single parent	3.18	2.11	1.96	2.72	4.09	2.73
Not a single parent	0.62	0.34	0.54	0.45	0.88	0.41

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/97 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

Statistical Procedures

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error,[15] or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \tag{1}$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. This formula is valid only for independent estimates. When estimates are not independent, a covariance term must be added to the formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1\, se_2}} \tag{2}$$

where r is the correlation between the two variables.[16] The denominator in this formula will be at its maximum when the two estimates are perfectly negatively correlated; that is, when $r = -1$. This means that a conservative dependent test may be conducted by using –1 for the correlation in this formula, or

$$t = \frac{E_1 - E_2}{\sqrt{(se_1)^2 + (se_2)^2 + 2se_1 se_2}}. \tag{3}$$

The estimates and standard errors are obtained from the DAS.

[15]A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample was drawn, when no such difference is present.
[16]U.S. Department of Education, National Center for Education Statistics, *A Note from the Chief Statistician,* no. 2, 1993.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large t statistics may appear to merit special attention. This can be misleading since the magnitude of the t statistic is related not only to the observed differences in means or percentages but also to the number of respondents in the specific categories used for comparison. Hence, a small difference compared across a large number of respondents would produce a large t statistic.

A second hazard in reporting statistical tests for each comparison occurs when making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees both that the individual comparison would have $p \leq .05$ and that for k comparisons within a family of possible comparisons, the significance level for all the comparisons will sum to $p \leq .05$.[17]

For example, in a comparison of the percentages of males and females leaving postsecondary education without a degree, only one comparison is possible (males vs. females). In this family, k=1, and the comparison can be evaluated without adjusting the significance level. When respondents are divided into five racial/ethnic groups and all possible comparisons are made, then k=10, and the significance level of each test must be $p \leq .05/10$, or $p \leq .005$. The formula for calculating family size (k) is as follows:

$$k = \frac{j(j-1)}{2} \tag{4}$$

where j is the number of categories for the variable being tested. In the case of race/ethnicity, there are five racial/ethnic groups (American Indian/Alaska Native; Asian/Pacific Islander; Black, non-Hispanic; Hispanic; White, non-Hispanic), so substituting 5 for j in equation 4,

$$k = \frac{5(5-1)}{2} = 10$$

[17]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the t statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56 (1961): 52–64.

Adjustment of Means to Control for Background Variation

Many of the independent variables included in the analyses in this report are related, and to some extent the pattern of differences found in the descriptive analyses reflect this covariation. For example, when examining the propensity to have an alternative working arrangement by gender, it is possible that some of the observed relationship is due to differences in other factors related to gender, such as marital status, age at degree completion, and so on. However, if nested tables were used to isolate the influence of these other factors, cell sizes would become too small to identify the significant differences in patterns. When the sample size becomes too small to support controls for another level of variation, other methods must be used to take such variation into account. The method used in this report estimates adjusted means with regression models, an approach sometimes referred to as communality analysis.

For the multivariate analyses reported here, multiple linear regression was used to obtain means that were adjusted for covariation among a list of control variables.[18] Each independent variable is divided into several discrete categories. To find an estimated mean value on the dependent variable for each category of an independent variable, while adjusting for its covariation with other independent variables in the equation, substitute the following in the equation: (1) a one in the category's term in the equation, (2) zeroes for the other categories of this variable, and (3) the mean proportions for all other independent variables. This procedure holds the impact of all remaining independent variables constant, and differences between adjusted means of categories of an independent variable represent hypothetical groups that are balanced or proportionately equal on all other characteristics included in the model as independent variables.

For example, consider a hypothetical case in which two variables, age and gender, are used to describe an outcome, Y (such as having an alternative working arrangement). The variables age and gender are recoded into a dummy variable representing age, A, and a dummy variable representing gender, G:

Age	A
Less than 20 years old	0
20 years or older	1

and

[18]For more information about least squares regression, see Michael S. Lewis-Beck, *Applied Regression: An Introduction*, Vol. 22 (Beverly Hills, CA: Sage Publications, Inc., 1980); William D. Berry and Stanley Feldman, *Multiple Regression in Practice*, Vol. 50 (Beverly Hills, CA: Sage Publications, Inc., 1987).

Gender	*G*
Female	1
Male	0

The following regression equation is then estimated from the correlation matrix output from the DAS as input data for standard regression procedures:

$$\hat{Y} = a + b_1 A + b_2 G \tag{5}$$

To estimate the adjusted mean for any subgroup evaluated at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, suppose *Y* represents having an alternative working arrangement, which is being described by age (*A*) and gender (*G*), coded as shown above. Suppose the unadjusted mean values of these two variables are as follows:

Variable	Mean
A	0.355
G	0.521

Next, suppose the regression equation results are as follows:

$$\hat{Y} = 0.15 + 0.17A + 0.01G \tag{6}$$

To estimate the adjusted value for older workers, one substitutes the appropriate parameter estimates and variable values into equation 6.

Variable	Parameter	Value
a	0.15	—
A	0.17	1.000
G	0.01	0.521

This results in the following equation:

$$\hat{Y} = 0.15 + (0.17)(1) + (0.01)(0.521) = 0.325$$

In this case, the adjusted mean for older workers is 0.325 and represents the expected outcome for older employees who resemble the average person across the other variables (in this example, gender). In other words, the adjusted percentage of older workers who had alternative working arrangements after controlling for gender is 32.5 percent (0.325 x 100 for conversion to a percentage).

It is relatively straightforward to produce a multivariate model using the DAS, since one of the DAS output options is a correlation matrix, computed using pairwise missing values. In regression analysis, there are several common approaches to the problem of missing data. The two simplest are pairwise deletion of missing data and listwise deletion of missing data. In pairwise deletion, each correlation is calculated using all of the cases for the two relevant variables. For example, suppose you have a regression analysis that uses variables X1, X2, and X3. The regression is based on the correlation matrix between X1, X2, and X3. In pairwise deletion, the correlation between X1 and X2 is based on the nonmissing cases for X1 and X2. Cases missing on either X1 or X2 would be excluded from the calculation of the correlation. In listwise deletion, the correlation between X1 and X2 would be based on the nonmissing values for X1, X2, and X3. That is, all of the cases with missing data on any of the three variables would be excluded from the analysis.

The correlation matrix can be used by most statistical software packages as the input data for least squares regression. That is the approach used for this report, with an additional adjustment to incorporate the complex sample design into the statistical significance tests of the parameter estimates (described below).[19]

Most statistical software packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for the B&B surveys, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the design effect associated with the dependent variable (DEFT),[20] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and produced with the correlation matrix output.

[19]Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to estimate other types of models, such as logit models, can apply for a restricted data license from NCES.

[20]The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds., *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

	This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.
X	This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").